<u>ARCHITECTURE</u>

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PUBLIC RELATIONS ROOF - USU DESIGN DEVELOPMENT SET

3

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UTAH STATE UNIVERSITY PROJECT NUMBER: #24265



ELECTRICAL

SPECTRUM ENGINEERS 324 S State St Suite 400, Salt Lake City, UT 84111

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PUBLIC

JOB NUMBER: 24265 **OWNER:** UTAH STATE UNIVERSITY DATE: 12/19/2024

DESCRIPTION REV DATE

COVER



ABBREVIATIONS

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& @ °	AND AT DEGREES	JST MAX
Ø	DIAMETER	MDF MECH
ACT AFF ALT AL/ALUM APPROX ARCH	ACOUSTIC CEILING TILE ABOVE FINISH FLOOR ALTERNATE ALUMINUM APPROXIMATE ARCHITECTURAL	MEZZ MFR MIN MIR MO MTL
BD BLDG B.O.	BOARD BUILDING BOTTOM OF	N NIC NO. NOM
CAB CG CJ CL CLG	CABINET CORNER GUARD CONTROL JOINT CENTER LINE CEILING	NRC NTS OC OD
CLR CM COL CONC CONT	CLEAR CONSTRUCTION MANAGER COLUMN CONCRETE CONTINUOUS	OH OPG OPP OSB
CORR CMU CPT CSBA CT	CORRIDOR CONCRETE MASONRY UNIT CARPET COLOR SELECTED BY ARCH CERAMIC TILE	PERI PERM PL P LAM PNL
D DB DBL	DEPTH DECK BEARING DOUBLE	PNT P.O. PART PLY
DEPT DF DIM	DEPARTMENT DRINKING FOUNTAIN DIMENSION	QT
DN DRN DTL/DET DWG	DOWN DRAIN DETAIL DRAWING	R/RAD RCP REC REF
E EA EIFS F.I	EAST EACH EXTERIOR INSULATION SYSTEM EXPANSION JOINT	REINF REQD RM RO
ELEC ELEV	ELECTRICAL ELEVATION	S SCHED
EQUIP EXIST/(E) EXP EXT	EQUIPMENT EXISTING EXPANSION EXTERIOR	SF SIM SPEC SS
FA FD	FIRE ALARM FLOOR DRAIN	STC STD STL
FDN FE FG FH FIN	FOUNDATION FIRE EXTINGUISHER FINISH GRADE FIRE HYDRANT FINISHED	STOR STRUC SUSP SYS
FLR F.O. FTG FV	FLOOR FACE OF FOOTING FIELD VERIFY	T T & B T & G TBD
GA GALV GC GFRC	GAUGE GALVANIZED GENERAL CONTRACTOR GLASS FIBER REINF PANEL	TEMP THRU T.O. TS TYP
GYP GWB	GYPSUM GYPSUM WALLBOARD	UNO
HDW HDF HM H HOR	HARDWARE HIGH DENSITY FIBERBOARD HOLLOW METAL HEIGHT HORIZONTAL	VAR VCT VERT VEST
ID INT INSUL	INNER DIAMETER INTERIOR INSULATE	W W/ WC WD W/O WWF

JOIST
MAXIMUM MEDIUM DENSITY FIBERBOARD MECHANICAL MEZZANINE MANUFACTURER MINIMUM MIRROR MASONRY OPENING METAL
NORTH NOT IN CONTRACT NUMBER NOMINAL NOISE REDUCTION COEFFICIENT NOT TO SCALE
ON CENTER OUTSIDE DIAMETER OVERHEAD OPENING OPPOSITE ORIENTED STRAND BOARD
PERMANENT PLATE PLASTIC LAMINATE PANEL PAINT POINT OF PARTITION PLYWOOD
QUARRY TILE
RADIUS REFLECTED CEILING PLAN RECESSED REFERENCE REINFORCED REQUIRED ROOM ROUGH OPENING
SOUTH SCHEDULE SECTION SQUARE FOOT SIMILAR SPECIFICATION STAINLESS STEEL SOUND TRANSMISSION CLASS STANDARD STEEL STORAGE STRUCTURAL SUSPENDED SYSTEM
THICKNESS TOP AND BOTTOM TONGUE AND GROOVE TO BE DETERMINED TEMPORARY THROUGH TOP OF TUBE STEEL TYPICAL
UNLESS NOTED OTHERWISE
VARIES VINYL COMPOSITION TILE VERTICAL VESTIBULE
WEST WIDTH WITH WATER CLOSET WOOD WITHOUT

WELDED WIRE FABRIC





2

VICINITY MAP



1

GENERAL NOTES

1. IT IS THE CONTRACTORS RESPONSIBILITY TO REVIEW AND COORDINATE THE WORK OF ALL SUB-CONTRACTORS, TRADES AND SUPPLIERS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BEFORE COMMENCING CONSTRUCTION, AND TO ASSURE THAT ALL PARTIES ARE AWARE OF ALL REQUIREMENTS, REGARDLESS OF WHERE THE REQUIREMENTS OCCUR IN THE CONTRACT DOCUMENTS, WHICH MIGHT AFFECT THE WORK OF THAT PARTY.

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- 2. AS PART OF THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK OF ALL SUB-CONTRACTORS, TRADES AND SUPPLIERS, THE CONTRACTOR SHALL ENDEAVOR TO IDENTIFY AND NOTIFY THE ARCHITECT OF ANY CONFLICTS BETWEEN THE WORK OF DIFFERENT PARTIES AT THE EARLIEST POSSIBLE DATE. ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS MUST BE APPROVED IN ADVANCE BY THE ARCHITECT.
- 3. THE ARCHITECTURAL DRAWINGS ESTABLISH THE FINISHED APPEARANCE AND LOCATION OF EXPOSED ELEMENTS OF THE WORK OF ALL THE TRADES, INCLUDING THAT WORK WHICH IS ILLUSTRATED PRIMARILY ON DRAWINGS OF OTHER DISCIPLINES.
- 4. DO NOT SCALE DRAWINGS. ALL NECESSARY DIMENSIONS ARE NOTED, OR MAY BE DERIVED FROM THOSE NOTED, IN THE CONSTRUCTION DOCUMENTS. IF DIMENSIONS ARE NOT PRESENT, THE ARCHITECT IS TO BE NOTIFIED.
- 5. VERIFY THAT ALL WORK CONFORMS WITH THE GOVERNING BUILDING CODES LISTED ON THIS SHEET, AS WELL AS THE REQUIREMENTS AND REGULATIONS OF THE LOCAL MUNICIPALITY.
- 6. CONTRACTOR IS RESPONSIBLE FOR CORRECTION OF WORK AT HIS OWN EXPENSE FOR WORK WHICH DOES NOT COMPLY WITH THESE DOCUMENTS.
- 7. PROVIDE NECESSARY STIFFENERS, BLOCKING, BRACING, HANGERS, ETC. FOR ALL CABINETRY EQUIPMENT, FURNISHINGS, TOWEL BARS OR OTHER ITEMS.
- 8. FLASHING AND COUNTER FLASHING IS TO BE PROVIDED AT ALL NECESSARY LOCATIONS IN ACCORDANCE WITH BUILDING CODE AND BEST CONSTRUCTION PRACTICES. THESE LOCATIONS INCLUDE, BUT ARE NOT LIMITED TO, THE CONNECTION OF A ROOF WITH A VERTICAL SURFACE, EXTERIOR OPENINGS, IN-PLANE MATERIAL CHANGES, ROOF VALLEYS AND RIDGES, CONNECTIONS BETWEEN HORIZONTAL AND VERTICAL SURFACES, ETC.
- 9. WOOD FRAMING MEMBERS IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED WOOD.

SHEET NAME + NUMBER



PLAN TYPE .0 SLAB PLAN

.1 ANNOTATED PLAN .2 REFLECTED CEILING PLAN

SEQUENCE

DENOTES AREA SEQUENCE IN PLAN, AND NUMERIC SEQUENCE IN NON-PLAN SHEETS

LEVEL DENOTES LEVEL IN A MULTI-STORY BUILDING, AND NUMERIC SEQUENCE IN NON-PLAN SHEETS

SHEET TYPE
 0 GENERAL NOTES + LEGENDS

- 1 FLOORPLAN 2 ELEVATION
- 3 SECTION
- 4 ENLARGED PLAN 5 DETAIL
- 6 SCHEDULES
- 7 USER DEFINED 8 USER DEFINED
- 9 3D DRAWINGS + PERSPECTIVES



GENERAL	
CV	COVER
G001	GENERAL INFORMATION + INDEX
G002	SPECIFICATIONS
G003	SPECIFICATIONS
G004	SPECIFICATIONS
CIVIL	
C100	CIVIL PLAN
ARCHITEC	
AS101	OVERALL PLAN - SITE
ARCHITEC	TURAL
A190	OVERALL ROOF PLAN - LEVEL 01
A551	PHOTO DETAILS
A560	ROOF DETAIL
ELECTRIC	AL
EE001	ELECTRICAL COVER SHEET
EE002	ELECTRICAL NARRATIVE
EE003	ELECTRICAL SPECIFICATIONS
EE501	ELECTRICAL DETAILS
EP102	LEVEL 2 POWER PLAN
EP103	ROOF POWER PLAN

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Grand total: 16

SHEET INDEX





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JOB NUMBER: 24265 12/19/2024

DESCRIPTION

GENERAL **INFORMATION +** INDEX

OWNER: UTAH STATE UNIVERSITY DATE: REV DATE

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DIVISION 1 - GENERAL REQUIREMENTS

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01 1000 SUMMARY:

A. Work Covered By Contract Documents 1. Provisions contained in Division 01 apply to all other sections and divisions of Specifications. All instructions contained in Specifications are directed to Contractor. Unless specifically provided otherwise, all obligations set forth in Specifications are obligations of Contractor.

01 1800 PROJECT UTILITY SOURCES:

A. **Temporary Utilities:** The Contractor shall make arrangements with available utility(s) for temporary connections and bear all costs for these utilities. On the campus proper and assume peripheral areas the utilities are University utilities and the contractor shall make arrangements through FD&C for connections. The Contractor shall provide and install meters for measuring use of utilities purchased from Utah State University. FD&C shall read or have the meters read at the beginning of the project, monthly, and at the end of the project. The contractor shall be responsible for all utility costs including those from the University.

01 3100 PROJECT MANAGEMENT AND COORDINATION

- **General:** The following requirements shall be incorporated in the Contract Documents: A. Schedules: For USU delegated and capital improvement projects, the Contractor shall provide a construction schedule with each pay request. Pay Requests w/o schedules will not be processed. The Contractor shall deliver this schedule and pay request to the Consultant first. The Consultant shall review the pay request to verify accuracy and amount completed. Consultant will then transmit to the USU FD&C Construction Coordinator for approval and payment.
- B. Progress Meetings: The Contractor shall be in charge of the construction progress meetings, set the agenda and take minutes. The contractor shall distribute copies of the agenda and minutes to Facilities Design & Construction, and the Consultant prior to each meeting. The agenda for weekly scheduled progress meetings shall cover the following:
- 1. Problems and potential field orders or change orders, proposal requests, and RFI's. 2. Update of the construction schedule. 3. Work Completed during the last week.
- 4. Items to be completed during the next week with assignments.

01 3300 SUBMITTAL PROCEDURES

- A. General: The following requirements shall be incorporated in the Contract Documents: 1. Shop Drawings, Product Data and Samples: The following submittals shall be given to the FD&C Project Coordinator for review simultaneously with the Architect's and Engineers for their incorporation into a review set. One copy of the stamped, approved set shall be sent to the FD&C project coordinator.
 - a. All exterior materials.
 - b. Roofing and waterproofing
 - c. Paint samples and color schedules.

01 3500 SPECIAL PROCEDURES

- A. **General:** The following requirements shall be incorporated in the Contract Documents. 1. **Utilities Mapping:** The Contractor shall notify FD&C forty-eight (48) hours before back filling any site utility excavations to allow for the mapping of new and existing utilities by the University. This applies to all site excavations in which utility lines are encountered. Utility mapping by the University does not relieve the Contractor from the responsibility of
- preparing as-built drawings of utility work performed under contract. 2. **Utility & Systems:** Construction documents shall require contractor to give 7 days
- advanced notice of required shut downs in writing. 3. **Site Dust Control:** Provide effective dust control measures in all remodeling areas. Site dust control is required per EPA regulations.
- 4. **Contract Limits**: The limits of responsibility for the Contractor and the Consultant shall include all impacted adjacent university property including landscape areas, sidewalks, roadways, parking lots, and utilities. Such extended areas will be shown on the drawings and indicate that the Contractor has responsibility to maintain and restore affected areas. 5. **Contractor's Use of Building Equipment:** The Contractor may have limited use of
- building equipment such as electric motors, blowers, heat exchangers, filters, lighting fixtures, restroom facilities, etc., with the permission of FD&C. Elevators may be used during construction only with permission.

01 4100 REGULATORY REQUIREMENTS

- A. **Campus Restrictions:** The following requirements shall apply during construction:
- Abide by all posted campus regulations in regard to traffic, parking, smoking, noise, etc. 2. All trash and recycling is to be hauled from campus to a legal disposal site. At no time shall on-site burning be allowed. Do not use University dumpster's for trash disposal.
- Class Schedules should be observed to avoid undue disturbances.
- 4. Parking permits are required for any parking outside the contract limit lines.
- 5. Consultants and Contractors performing work for USU are subject to federal and state laws regarding affirmative action, equal employment opportunity, and sexual harassment. 6. During construction of the project the Contractor shall limit noise from the site as much as possible. Local sound ordinances are in effect. Coordinate with FD&C for appropriate times to use loud equipment such as jackhammers or shot-nailers. Radios and other

01 5200 CONSTRUCTION FACILITIES

devices will not be permitted on-site.

A. Sanitary Facilities: The Contractor shall provide temporary sanitation facilities for the project.

- 01 5300 TEMPORARY CONSTRUCTION
- A. When routing pedestrians around an area of construction, the Contractor shall provide temporary walking surfaces across existing landscaped areas. These surfaces shall be constructed of a durable material with a slip-resistant surface. The use and placement of temporary walking surfaces shall be approved in advance by FD&C. The Contractor shall restore all landscaped areas damaged by the placement and use of the walkways. The Contractor shall also restore landscape damaged by pedestrians routed over existing's landscape to avoid construction.

01 5500 VEHICULAR ACCESS AND PARKING

- A. Indicate on the Construction Drawings access routes to job site through the campus for delivery trucks and other vehicles concerned with the project. Determine these routes with FD&C. Any damage to these areas shall be repaired by the Contractor upon completion of the project.
- 01 5600 TEMPORARY BARRIERS AND ENCLOSURES
- A. Open excavations outside of construction fences shall be protected by 6 foot high screened chain link fencing shall not extend into pedestrian walkway and shall not create a safety hazard. Upon completion of the project, the Contractor shall dismantle the fence and remove it from site.
- B. When pedestrians are routed around construction areas additional barricade(s) will be required to prevent damage to adjacent landscaped areas. Barricade(s) shall be placed to route pedestrians around affected areas using existing paved surfaces. Upon completion the Contractor shall dismantle barricade(s) and remove it from site.
- 01 7701 TRANSFERRING ITEMS
- A. The Contractor shall transfer all deliverables through the Consultant to the University. All Contractor supplied items transferred to the University shall be accompanied by a letter of Transmittal signed by an authorized agent and delivered to FD&C as a record copy by the Consultant. As-builts, O&M Manuals, guarantees, salvaged equipment, extra or service parts or other similar type items should be handled in this way to avoid misunderstandings of what has been transferred and when it was transferred.

01 7702 CLOSEOUT PROCEDURES

- A. General: The following requirements shall be incorporated in the Contract Documents:
- 1. **Substantial Completion:** A substantial completion certificate shall not be issued until the University **may** occupy the building. The Attorney General has clarified this as follows: a. That *all* Fire Marshal items are cleared and a "Certificate of Fire Clearance" is issued. b. That the Consultant has received balance reports from the contractor. c. That all correction items have been substantially completed.
- 2. **Pre-Substantial Completion Inspection:** The Consultant will schedule a pre-substantial completion inspection. The inspection shall include all Consultants, FD&C, Building Code Official or representative, and other invited University representatives. A. All inspection reports by University representatives shall be submitted to FD&C who
- will provide the Consultant with copies of the reports. The Consultant shall check for conformance to the Contract Documents.
- B. The Consultant shall assemble all reports and distribute copies to the Contractor and FD&C.

- 3. **Substantial Completion Inspection:** The substantial completion inspection will be held after completion of the items noted in the pre-substantial completion inspection report and when the building is ready for occupancy. The substantial completion inspection will be made with the State Fire Marshal, State and University officials, the Cons Contractor.
- 4. Insurance Termination: Advise USU of pending insurance termination of 5. Deliverables: Prior to final payment, provide one complete electronic se maintenance manuals and warranties as outlined in Section 01 7823. The also provide accurate as-built drawings for the purpose of generating a reas outlined in Section 01 7839.

01 7823 OPERATION AND MAINTENANCE DATA

- A. Assemble a complete set of operation and maintenance manuals. O&M man comprised of the following: 1. General Contractor and subcontractor contact information.
- Warranty Information.
- 3. Manufactures' information submitted as part of the shop drawing review O&M data required in project specification sections.
- 4. Instruction to care and maintenance specific to each provided system or 5. Product data with catalog number, size, color and other information nece
- each system or component provided. 6. Transmittals showing FD&C's acceptance of all extra material specified. 7. Electronic files shall be submitted in PDF format.
- a. Separate into the following major groups: Contractor information and Architectural section Mechanical.
- b. Each PDF must include bookmark linked to each section with sub bo
- subcategory, product manual, and piece of equipment. PDFs must have text recognition / optical character recognition (OCF
- PDFs are searchable.
- d. PDFs shall be editable to the extent that files and pages can be adde and text can be copied.
- e. All passwords must be removed from files.

DIVISION 6 - WOOD AND PLAS

PART 1 - GENERAL

- A. Related Documents: Drawings and general provisions of the Contract, inc Supplementary Conditions and Division 1 Specification Sections, apply to B. **Summary:** This section includes the following:
- 1. Wood blocking, cants and nailers.
- 2. Plywood backing panels.
- C. Definitions: Lumber grading agencies, and abbreviations used to reference following: 1. WCLIB - West Coast Lumber Inspections Bureau.
- 2. WWPA Western Wood Products Association.
- Submittals:
- A. Product Data: For each type of process and factory-fabricated product. In materials and dimensions and include construction and application details. 1. Include data for wood-preservative treatment from chemical treatment certification by treating plant that treated materials comply with require of preservative used, net amount of preservative retained, and chemic manufacturer's written instructions for handling, storing, installing, and
- material. 2. Include data for fire-retardant treatment from chemical treatment manu certification by treating plant that treated materials comply with require physical properties of treated materials, both before and after exposure temperatures when tested according to ASTM D 5516 and ASTM D 56 Include copies of warranties from chemical treatment manufacturers for
- treatment B. Research / Evaluation Reports: For the following, showing compliance w
- effect for Project:
- 1. Preservative-treated wood. Fire-retardant-treated wood
- Expansion Anchors.
- C. Delivery, Storage, and Handling: Stack lumber, plywood, and other pane between each bundle to provide air circulation. Provide for air circulation a under coverings.
- PART 2 PRODUCTS

Wood Products, General:

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies cert American Lumber Standards Committee Board of Review.
- 1. Factory mark each piece of lumber with grade stamp of grading agend Where nominal sizes are indicated, provide actual sizes required by D moisture content specified. Where actual sizes are indicated, they are sizes for dry lumber.
- 3. Provide dressed lumber, S4S, unless otherwise indicated. 4. Provide dry lumber with 19 percent maximum moisture content at time inch nominal (38-mm actual) thickness or less, unless otherwise indica
- B. Wood Structural Panels:
- 1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated. 2. Oriented Strand Board: DOC PS 2.
- 3. Thickness: As needed to comply with requirements specified but not le indicated.
- Comply with "Code Plus" provisions in APA Form No. E530K, "APA D Guide: Residential & Commercial."
- 5. Factory Mark panels according to indicated standard.
- Wood Preservative-Treated Materials:
- A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and / except that lumber that is not in contact with the ground and is continuously liquid water may be treated according to AWPA C31 with inorganic boron 1. Preservative Chemicals: Acceptable to authorities having jurisdiction a
 - following:
 - a. Chromated copper arsenate (CCA) HIM Fir b. Ammoniacal copper zinc arsenate (ACZA) - Douglas Fir
- c. Ammoniacal, or amine, copper quat (ACQ) Douglas Fir 2. For exposed items indicated to receive a stained or natural finish, use formulations that do not require incising, contain colorants, bleed throu
- adversely affect finishes. B. Kiln-dry material after treatment to a maximum moisture content of 19 perc
- 15 percent for plywood. Do not use material that is warped or does not con requirements for untreated material. C. Mark each treated item with the treatment quality mark of an inspection age
- the American Lumber Standards Committee Board of Review.
- D. **Application:** Treat items indicated on Drawings, and the following: 1. Wood Sills, sleepers, blocking, furring, stripping, and similar concealed

contact with masonry or concrete. Miscellaneous Lumber:

- A. General: Remove all damaged nailers/blocking and replace with new treat locations as detailed. Do not reuse existing nailers or blocking that will not anchoring loads. Provide new and/or additional blocking for support or atta membrane and flashing, including the following:
- 1. Blocking. Cants.
- Nailers. 4. Grounds.

when the building is ready for occupancy. The substantial completion inspection will be made with the State Fire Marshal, State and University officials, the Consultant, and the Contractor	and reamer wings, length as recommended by screw manufacturer for material being fastened. D. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M) E Bolts: Steel bolts complying: with ASTM A 563 (ASTM A 563M) bey puts and where indicated	 Place both set screws on same side of clamp. Tighten set screws to manufacturer's recommended torque for exis conditions
 Insurance Termination: Advise USU of pending insurance termination date. Deliverables: Prior to final payment, provide one complete electronic set of operation and 	 F. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with 	07 3100 SHINGLES
maintenance manuals and warranties as outlined in Section 01 7823. The Contractor shall also provide accurate as-built drawings for the purpose of generating a record drawing set	capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as	PART 1 - GENERAL
as outlined in Section 01 7839.	determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.	Section includes A. Synthetic shake shingles, Underlayment, flashings, fasteners, and acce
Assemble a complete set of operation and maintenance manuals. O&M manuals shall be	 Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5. PART 3 - EXECUTION 	Related Sections A. Section 06100 - Rough Carpentry. B. Section 07600 - Flashing and Sheet Metal
comprised of the following: 1. General Contractor and subcontractor contact information.	 A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement. 	C. Section 07910 - Joint Fillers. References
 Warranty Information. Manufactures' information submitted as part of the shop drawing review process. Include 	 B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, 	 A. American Society for Testing and Materials (ASTM): 1. ASTM D 226 - Standard Specification for Asphalt-Saturated Organ
O&M data required in project specification sections.Instruction to care and maintenance specific to each provided system or component.	blocking, and similar supports to comply with requirements for attaching other construction. C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber	and Waterproofing. 2. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asp
 Product data with catalog number, size, color and other information necessary to identify each system or component provided. Transmittals showing ED&C's acceptance of all extra material specified 	and plywood. D. Securely attach carpentry work as indicated and according to applicable codes and recognized	 Induced Method). ASTM D 3462 - Standard Specification for Asphalt Shingles Made Surfaced with Mineral Cranules
 Flation and the submitted in PDF format. a. Separate into the following major groups: 	E. Use fasteners of appropriate type and length. Wood Blocking, and Nailer Installation:	 ASTM E 108 (UL 790) - Standard Test Methods for Fire Tests of R ASTM G 21 - Standard Practice for Determining Resistance of Syn
Contractor information and Architectural sectionMechanical.	A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work	Materials to Fungi. B. Florida Building Code Testing Application Standard (TAS): TAS 125 - T
 b. Each PDF must include bookmark linked to each section with sub bookmarks for each subcategory, product manual, and piece of equipment. c. PDFs must have text recognition (or provide the section of the section) 	involved. B. Attached items to substrates at support applied loading. Recess bolts and nuts flush with	on Roof Assemblies C. Underwriters Laboratories (UL):
PDFs are searchable. d. PDFs shall be editable to the extent that files and pages can be added and combined.	Panel Product Installation: A. Wood Structural Panels: Comply with applicable recommendations contained in APA Form	 UL 997 - Wind Resistance of Prepared Roof Covering Materials. UL 2218 - Impact Resistance of Prepared Roof Covering Materials
and text can be copied. e. All passwords must be removed from files.	No. E30K, "APA Design/Construction Guide: Residential & Commercial, "for types of structural- use panels and applications indicated.	D. International Code Council (ICC): ES Acceptance Criteria ACO7 Section Performance Requirements
· · · · · · · · · · · · · · · · · · ·	06 2000 FINISH CARPENTRY	 A. Shake roof system to consist of manufactured synthetic shakes attached to form weather tight roof envelope with no measurable water penetration. B. Mathed of attachments shall be designed to adequately resist wind uplied.
DIVISION 6 - WOOD AND PLASTICS	A. Environmental Conditions: Finish carpentry shall be maintained at a constant interior relative humidity level within the ranges shown in the AWI standards, approximating the final building	and project location. Roof assembly meet minimum uplift resistance of 2:1 safety patch in accordance with TAS 125.
	humidity level. Contractor shall use an appropriate temporary heating source to achieve the humidity levels recommended by AWI.	Submittals A. Submit under provisions of Section 01300 - Administrative Requirement
06 0100 MAINTENANCE OF WOOD, PLASTICS, AND COMPOSITES		 B. Product Data: Manufacturer's data sheets on each product to be used, 1. Shingles, underlayment, flashings, fasteners, and accessories india properties, and dimensions. Provide data showing compliance with
site. Wood shall be kiln dried and arrive on site with the moisture content not to exceed 19%. Proper ventilation to control warping shall be provided.	DIVISION 7 - THERMAL & MOISTURE	 Preparation instructions and recommendations. Storage and handling requirements and recommendations.
06 1053 MISCELLANEOUS CARPENTRY		4. Installation methods.C. Shop Drawings: Drawings illustrating shingle layout, method of attachm
PART 1 - GENERAL	U/ U5UU STANDARDS FOR FHERMAL & MOISTURE PROTECTION	 conditions at eaves, intersections with adjacent materials, and other ins D. Selection Samples: For each finish product specified, two complete set representing manufacturer's full range of available colors and surface to
 Supplementary Conditions and Division 1 Specification Sections, apply to this Section. B. Summary: This section includes the following: 	 A. Standards. The design shall conform to the current National Rooting Contractor's Association roofing and waterproofing manual. B. Thermal and Moisture Barrier Pre-Construction Conference: Hold a pre-construction 	 E. Verification Samples: For each finish product specified, two samples, reproduct, color, and texture.
 Wood blocking, cants and nailers. Plywood backing panels. 	conference with all concerned parties in attendance.	Quality Assurance A. Manufacturer Qualifications: Company specializing in manufacturer of s
C. Definitions: Lumber grading agencies, and abbreviations used to reference them, include the following:	07 2270 FALL PROTECTION DEVICES	 B. Installer Qualifications: Company specializing in installing shingle roof s minimum experience. C. Mack Lip: Provide a mack up for evaluation of surface propagation tech
WCLIB - West Coast Lumber Inspections Bureau. WWPA - Western Wood Products Association. Submittals:	PART 1 - GENERAL Summary A Section Includes: Boof tie-down system of fall restraint and fall arrest for worker safety. Boof	workmanship. 1. Finish areas designated by Architect.
 Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details. 	fall protection anchorage system shall consist of single point anchors secured to roof structure. Anchor attachment screws and bolts shall not penetrate roof membrane.	2. Do not proceed with remaining work until workmanship, color, and Architect.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type	System Description A. General: Provide structural fall restraint and fall arrest system capable of withstanding loads	 Rework mock-up area as required to produce acceptable work. Pre-Installation Conference Converse a pre-installation conference at the site prior to commencing a
of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material	and stresses within limits and under conditions specified in OSHA and other applicable safety codes. Provide tall protection anchors permanently attached to roof structure.	 Require attendance of entities directly concerned with roof installation. Installation procedures and manufacturer's recommendations.
 Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include 	 Design requirements. Anothers and accessiones comprising system of following types. Guardian Roof anchors, spaced as indicated, for safety snap connection by individual workers capable of withstanding a 5,000 pound load or safety factor of 2 meeting the 	 Safety procedures. Coordination with installation of other work.
physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.	requirements of OSHA 1926.502(d)(8). 2. Cable lifeline systems to pass through intermediate anchor attachment points and	 Availability of roofing materials. Preparation and approval of substrate and penetrations through roof. Other items related to successful execution of work.
 a. Include copies of warranties from chemical treatment manufacturers for each type of treatment. B. Research / Evaluation Reports: For the following, showing compliance with building code in 	restrained at either end by steel shackle and cable fist grips; Detaching and reattaching to the system at is intermediate anchors required.	Delivery, Storage, and Handling A. Ship in bundles of shingles. Collate shingles in sequence of widths and
effect for Project: 1. Preservative-treated wood.	 Thinke shock absorber, one shock pack for total spans up to ob and two shock packs for total spans between 60' and 100'. C. Performance Requirements: System and components tested for resistance of following 	selected color blend. Bundles shall be assembled such that sorting at ja B. Deliver shingles to site in manufacturer's unopened, labeled bundles. P
 Fire-retardant-treated wood. Expansion Anchors. 	loads: 1. Fall Restraint: 4 users per horizontal lifeline system	 and condition. Immediately remove damaged products from site. C. Store products in protected environment, clear of ground and moisture, traffic and construction activities. Store chingles flat. Do not store on ait
C. Delivery, Storage, and Handling: Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stack and under coverings	 Fall Arrest: 2 users per horizontal lifeline system Design fall protection anchors to resist at least 5,000 pound applied in any direction or provide engineered system designed meeting the requirements of OSHA 1026 502(d)(8) 	 D. Store synthetic shake products at temperature between 40 and 120 deg 49 degrees C).
PART 2 - PRODUCTS Wood Products, General:	 4. Design system to limit loads on horizontal lifeline anchors to 2,500 pounds. Submittals 	 E. Store synthetic slate products at temperature between 40 and 120 degr 49 degrees C).
A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.	A. Product Data: For each type of fall prevention device specified, including manufacturer's standard fabrication details and installation instructions.	F. Store and dispose of solvent-based materials, and materials used with in accordance with requirements of local authorities having jurisdiction. Preject Conditions
 Factory mark each piece of lumber with grade stamp of grading agency. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for mainture content specified. Where actual sizes are indicated, they are minimum draced 	B. Shop Drawings: Show layout, profiles, and anchorage details. Include anchor calculations to demonstrate the integrity of anchor assembly as well as connection to the roof. Shop drawings	 A. Anticipate and observe environmental conditions (temperature, humidit limits recommended by manufacturer for optimum results. Do not instal
sizes for dry lumber. 3. Provide dressed lumber, S4S, unless otherwise indicated.	 C. Maintenance Data: Written instructions for maintenance of fall prevention safety devices to be 	environmental conditions outside manufacturer's absolute limits. Warranty
4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2- inch nominal (38-mm actual) thickness or less, unless otherwise indicated.	included in the operation and maintenance manual. D. In House Test Reports: Indicate anchor fabrication complies with performance requirements.	 A. Warranty Requirements: 1. Manufacturer's 50 years warranty for shingles against breakage an aguese leaks under permal weather and use conditions.
 B. Wood Structural Panels: 1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated. 2. Oriented Strand Board: DOC PS 2 	 E. Signage: Provide laminated sign showing system layout to be installed at roof access locations. 	 Installer's 2 years total roof system warranty including underlaymer other roof components against water penetration.
 Chented Strand Doard: DOC 1 3 2. Thickness: As needed to comply with requirements specified but not less than thickness indicated. 	Quality Assurance A. Manufacturer Qualifications: Firm having at least 10 years continuous experience in manufacturing fall safety equipment similar to systems specified and exhibiting records of	PART 2 - PRODUCTS Manufacturers
 Comply with "Code Plus" provisions in APA Form No. E530K, "APA Design/Construction Guide: Residential & Commercial." 	successful in-service acceptability and performance. B. Professional Engineer Qualifications: A professional engineer who is legally qualified to	A. Acceptable Manufacturer: DaVinci Roofscapes, LLC, which is located a Lenexa, KS 66215; Toll Free Tel: 800-DAVINCI; Tel: 913-599-0766; Fa request info (mstope@davincircofscapes.com); Web: www.davincircoff
5. Factory Mark panels according to indicated standard. Wood Preservative-Treated Materials: A Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (pluwood)	practice in jurisdiction where the Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those	B. Substitutions: Not permitted. Svnthetic Shake Shingles
except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).	performed for installations of roof anchors that are similar to those indicated for this Project in material, design and extent.	 A. Lightweight, synthetic shake shingles with the appearance, color, texture natural wood shakes.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and one of the following:	the Construction Industry 29 CFR § 1926.500 Subpart M (Fall Protection), and with applicable State Administrative Code safety standards for Fall Restraint and Fall Arrest.	 Product: Multi-Width Shake as manufactured by DaVinci Roofscap Material: Engineered polymer formulated from 100 percent virgin p high quality and consistency of row materials. Use of recorded wat
 a. Onromated copper arsenate (CCA) - HIM FIR b. Ammoniacal copper zinc arsenate (ACZA) - Douglas Fir c. Ammoniacal, or amine, copper guat (ACO) - Douglas Fir 	 D. Source Limitations: Obtain all roof anchors through one source from a single manufacturer. E. Roof fall protection anchorage system shall be acceptable to manufacturer and installer of 	 Attributes: a. Fire resistance when installed over one ply Elk Versashield Int
 For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise 	Coordination A. Coordinate installation of roof reinforcements and anchorages to receive fall protection	tested in accordance with ASTM E 108/UL 790.b. Fire resistance when installed over two plies MB Technology T
adversely affect finishes. B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is worned as door not examine the	anchors. Warranty	 class A tested in accordance with ASTM E 108/UL 790. c. Fire resistance when installed over one ply Fontana VulcaSeal accordance with ASTM F 108/UT 790
requirements for untreated material. C. Mark each treated item with the treatment quality mark of an inspection agency approved by	A. Provide manufacture's standard warranty to guarantee products will be free from defects for a period of 12 months. Warranty period shall become effective on date of substantial completion. PART 2 - PRODUCTS	 Fire resistance when installed over an underlayment listed by t Accreditation Service that meets Class A requirements when to
the American Lumber Standards Committee Board of Review. D. Application: Treat items indicated on Drawings, and the following:	ART 2 - PRODUCTS Manufacturers A. Provide fall protection system manufactured by Guardian Fall Protection Inc., 6305 S. 231	 108/UL790. Class C tested in accordance with ASTM E 108/U e. Water absorption: 0.18 percent by weight tested in accordance f. Impact registered: Class 4 to withstand two drams of 2 inches
 Wood Sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete. 	st Street, Kent WA, phone 800-466-6385, fax 800-670-7892, or equal. Materials	pounds (0.54 kg) steel ball dropped from 20 feet (6 m) tested in 2218.
 A. General: Remove all damaged nailers/blocking and replace with new treated lumber at edge locations as detailed. Do not reuse existing nailers or blocking that will not provide specified 	A. Guardian Permanent Anchor – submit for architects review information on anchor tie model and components that are recommended by the manufacturer as appropriate for this project.	 g. Nail pull through resistance: 138 foot-pounds at 72 degree F (1 C) and 166 foot-pounds at 32 degrees F (225 joules at 0 degree)
anchoring loads. Provide new and/or additional blocking for support or attachment of new membrane and flashing, including the following:	 B. Standard Clamps: 1. Manufactured from 6061-T6 aluminum extrusions conforming to ASTM B221 or aluminum 	 accordance with ASTM D 3462. h. Freeze-thaw resistance: No crazing, cracking, delamination of deleterious surface changes after one month expective with term
1. Blocking. 2. Cants. 3. Nailers	castings conforming to ASTM B85 and to AA Aluminum Standards and Data. Clamp model: No. S-5 (or as recommended by manufacturer)	from -40 to +180 degrees F (0 degrees to 82 degrees C) in 22 accordance with International Code Council (ICC) - ES Accept
 4. Grounds. B. For items of dimension lumber size, provide Construction, Stud, or No. 2 Standard. Stud. or 	 Set screws: 300 series stainless steel, 18-8 alloy, 3/8" diameter, with round nose point, two per clamp. Cup-point setscrews not permitted (or as recommended by manufacturer Attachment better: 200 Series stainless steel, 40.0 show the set of the set	Section 4.9. i. Accelerated weathering: Little change after 2,500 hours expos
No. 3 grade lumber with 19 percent maximum moisture content and any of the following species:	 Attachment poils: 500 Series stainless steel, 18-8 alloy, 10 mm diameter, with flat washers. C. Guardian Absorbinator Horizontal lifeline kit: each kit consisting of shock absorber(s) 	radiation, elevated temperature, moisture, and thermal shock. j. Fungus resistance: No algae growth when inoculated with blue damp environment for 4 to 6 weeks tested in accordance with
 Hem-Fir or Hem-Fir (north); NLGA, WCLIB, or WWPA. Northern Species; NLGA. Western woods: WCLIB or WWPA. 	turnbuckle, 2 shackles, 6 cable fist grips, and 2 o-rings. D. Cable: 3/8"x7x19 galvanized aircraft cable with average breaking strength of 14,400lbs.	 k. Installed weight: 1. At 9 inches (229 mm) exposure: 342 pounds per square (1
 Western woods, woold of wwwrA. C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades: 	E. Fasteners: Unless otherwise indicated, provide Type 304 stainless-steel fasteners or zinc- plated fasteners with coating complying with ASTM B 633 F 1941, Class Fe/ZN 5. Select	 At 10 inches (254 mm) exposure: 304 pounds per square Profile: Rectangular shape with exposed to view upper surface and
 Hem-Fir or Hem-Fir (north), Exterior grade. Northern Species, Exterior grade. 	Tasteners for type, grade, and class required. Fabrication A Powder-Coat Finish: Prepare, treat and coat galvanized metal to comply with manufacturer's	resemble natural wood shake. Underside formed with reinforcing ri and stability. 2 Size: Shake
3. Western Woods, Exterior grade. Fasteners A. General: Provide fasteners of size and type indicated that same humits and in the second type indicated that same humits and type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated that same humits are set of the second type indicated type indicated the second type indicated type ind	 written instructions as follows: Prepare galvanized metal by removing grease, dirt, oil. flux. and other foreign matter. 	 a. Thickness: Varies from 1/4 inch (6 mm) at top to 5/8 inch (16 n b. Length: 22 inches (559 mm).
 c. General. From the rate of size and type indicated that comply with requirements specified in this Article for material and manufacture. 1. Where carpentry is exposed to weather, or in area of high relative humidity, provide 	 Color: To match exposed surface of EPDM roofing. B. Fabricated work true to dimension, square, plumb, level and free from distortions or defects 	c. Variable widths: 4, 6, 7, 8, and 9 inches (102, 152, 178, 203 ar appearance of random sized natural wood shake.
fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M. B. Nails, Wire, Brads, and Staples: FS FF-N-105.	detrimental to appearance and performance. Installation A General: Installation of evotome to be performed by contractor in accordance with full.	
	 Deneral installation of systems to be performed by contractor in accordance with fall protection manufacturers engineering documentation and specifications 	
2	3	4

- 3

C. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 951, except with wafer heads

B. Wood Screws: ASME B18.6.1.

4

Install clamps in accordance with manufacturer's instructions.

A. Clamps:

r existing structural	 Starter Shingle: Provide 12 inches (305 mm) long by 12 inches (305 mm) wide. Markings: Form shingles with markings on upper surface to indicate nailing locations and provide alignment guide lines for different exposure lengths. Color: Provide shingles in multiple colors comparable to natural wood shakes. Provide internal UV stabilizers to provide durable color stability. Shingle Pattern: Provide shingles factory blended in multiple colors and widths to create installed appearance designated as follows: Tahoe Blend by DaVinci Roofscapes, LLC. 	
accessories.	 Accessories A. Underlayment: ASTM D 226 Type II No. 30 un-perforated saturated asphalt felt. B. Underlayment: ASTM D 3909 coated cap sheet. C. Waterproof Sheet Membrane: Cold applied, self-adhering waterproof membrane composed of polyethylene film coated one side with rubberized asphalt adhesive. 1. Thickness: 40 mils (1 mm). 2. Low temperature flexibility: Unaffected at minus 32 degrees F (-36 degrees C). 	A040 W DAYBREAK PKWY uncommonarch.com SOUTH JORDAN, UT 84009 (801) 417-995
organic Felt Used in Roofing	 A. Minimum tensile strength: 250 psi (1724 kPa). 4. Minimum elongation: 250 percent. 5. Permeance: 0.05 perms maximum. D. Flashing: Fabricate from sheet to profiles and dimensions indicated on Drawings and approved 	
f Asphalt Shingles (Fan-	shop drawings and in accordance with general requirements specified in Section 07 60 00 - Flashing and Sheet Metal.	CENSED ARCHIE
lade from Glass Felt and	 Material: 16 ounce copper. Material: 26 gage (0.455 mm) galvanized steel. 	sat. Un O TES
of Roof Coverings. f Synthetic Polymeric	 Linear components: Form in longest possible lengths with 8 feet (2.5 m) as minimum. Counter Flashings: Extend 4 inches (102 mm) minimum up vertical surfaces and 4 inches 	
25 - Test for Uplift Resistance	 (102 mm) minimum under shingles. Valley flashings: 24 inches minimum width and extending 10 inches (254 mm) minimum from valley center line. Fabricate eave flashings with bottom edge formed outward 1/4 inch (6 mm) and hemmed to 	DARIN M. MANO 9502000-0301
Tests of Roof Coverings. als.	form drip. E. Fasteners: 3/8 inch (9.5 mm) flat head nails 1-1/2 inches (38 mm) long.	USU PR ROOF 12/18/2024
erials. ection 4.9.	 Material: Copper. Material: Stainless steel. Material: Hot-dipped galvanized 	
tached to structural substrate	PART 3 - EXECUTION	
d uplift for roof configuration	A. Do not begin installation until substrates have been properly prepared.	
	preparation before proceeding.	
ements. Ised. includina:	A. Coordinate installation with provision of gutters and downspouts specified in Section 076000 - Flashing and Sheet Metal.	
s indicating composition, e with specified requirements.	 B. Inspect roof framing and plywood or OSB substrate. Verify roof is complete, rigid, braced, and deck members are securely fastened. Ensure proper ventilation has been provided for roof space. Do not proceed with roofing until deficiencies are addressed. C. Verify roof deck is clean, dry, and ready to receive synthetic shake shingles. D. Remove dirt. loose fasteners, and other protrusions from roof surface. 	
achment, flashings, trim, er installation details	Installation - General A. Install self-adhered waterproof sheet membrane on the eaves. Cover the waterproof sheet	
e sets of color chips ace textures.	membrane and the remaining portions of the roof as scheduled with the approved underlayment(s). Then install waterproof sheet membrane in valleys, along walls and around	
es, representing actual	projections terminating on top of underlayment. Underlayment Installation	
er of synthetic shingles.	A. Stripping Ply: A full sheet of self-adhered waterproof sheet membrane is required in all valleys. At least 18 inches (457 mm) shall be required on all gable ends, against walls, and around C	
roof systems with 3 years	projections. 1. In areas where the average daily temperature in January is 25 degrees F (-4 degrees C) or	
techniques and application	lower or where ice buildup is possible, install self-adhered waterproof sheet membrane from the bottom edge extending two feet (610 mm) above the exterior wall line on all eaves.	
and pattern are approved by	B. Install waterproof sheet membrane over full roof area. Apply waterproof sheet membrane in fair weather at temperatures of 40 degrees F (4 degrees C) or higher. Adhere and attach as	
k.	 Start underlayment installation at lower edge of roof. Install perpendicular to roof slope with <i>i</i> inches (102 mm) minimum side lans and 6 inches (152 mm) minimum end lans. Extend 	_
cing work of this Section:	underlayment 4 inches (102 mm) minimum up vertical wall intersections.	\Box
	to puncture or tear underlayment barrier with subsequent roofing operations. C. Underlayment/Slip Sheet: Install one-ply asphalt felt over full roof area, with ends weather	<u>n</u>
	lapped 4 inches (102 mm) minimum. Nail in place with roofing nails spaced in accordance with manufacturer's recommendations.	
gh roof.	Fire Resistive Roof Covering A. Class A tested in accordance with ASTM E 108: Provide one layer ASTM D 3909 cap sheet and	
s and colors as required for	one layer ASTM D 226 type II 30 lb sheet	Щ
g at job site is not required. les. Promptly verify quantities	A. Install overhanging drip edge on eaves and gable ends and metal flashings at valleys, hdges, hips, roof curbs, penetrations, and intersections with vertical surfaces in accordance with Section 07.60.00 - Elashing and Sheet Metal	Ö
sture, and protected from	 B. Weather lap joints 2 inches (52 mm) minimum and seal with sealant as specified in Section 07 91 26 - Joint Fillers. 	U X
20 degrees F (4 degrees C and	C. Secure in place with clips, nails, or other fasteners. Installation - General	
) degrees F (4 degrees C and	A. Install synthetic shingles in accordance with manufacturer's instructions and approved shop drawings.	S
with solvent-based materials, ction.	B. Accurately layout shingles. Ensure that edges are parallel and perpendicular to roof eaves.C. Cutting: Layout work to avoid cutting shingles.	Z
midity, and moisture) within	 At gables and vertical intersections, vary combination of shingle widths and spacing of shingles to avoid cutting. 	0
install products under	 If cutting is required, place sningle such that cut edge is not exposed. Use circular saw or straight edge and utility knife if cuts are necessary. 	F
as and datariaration that	A. Install shingles in a rack or pyramid style from factory assembled bundles. B. Exposure: Install shingles in straight pattern with 10 inches (254 mm) exposure and bottom	\mathbf{A}
wment flashings trim and	shingle edges evenly aligned. C. Exposure: Install shingles in staggered pattern with 9 inches (229 mm) exposure and bottom	
yment, naeninge, ann, ana	edges of adjacent shingles staggered 1 inch (25 mm). D. Spacing: Provide 3/16 - 3/8 inch (4.76 - 9.5 mm) gap between shingles to allow for expansion	
ated at: 13890 W. 101st St.;	and contraction. E. Stagger shingle joints in one course 1-1/2 inches (38 mm) minimum from joints in course below.	
6; Fax: 913-599-0065; Email: iroofscapes.com	F. Eaves: Install row of starter shingles at eaves as base layer. Project eave shingles approximately 1 inch (25 mm), 1/8 inch (3 mm) past overhanging drip edge, or as required to allow water to drain into gutter or off eaves as indicated or required.	O de la
taytura, and thickness of	G. Gables: Project shingles approximately 3/4 inch beyond gable rakes or 1/8 inch (3 mm) past overhanging drip edge	
	 H. Ridges and Hips: After field shingle installation is complete, install double row of shingles over 6 inches (152 mm) wide metal flashing. 	
gin plastic resins to ensure I materials is not acceptable.	1. Ridges: Use 6 inches (152 mm) wide shingles with 10 inches (254 mm) exposure. Start ridge shingles at leeward end. Face shingle laps away from prevailing wind.	
ld Interlayment: Class A	2. Hips: Use 6 inches (152 mm) wide shingles with 10 inches (254 mm) exposure. Start hip course at eave.	
ogy TU 35 underlayment:	I. Fastening: Attach each shingle to wood deck with 2 nails using hammer or pneumatic nail gun. 1. Place nails at locations indicated on shingles.	
aSeal G40; Class A Tested in	 2. Ensure good penetration but do not overdrive hall. Do not hall at angle. Ensure head is hush with shingle surface to avoid creating craters. 3. At valleys do not nail shingles within 5 inches (127 mm) of valley center line 	
d by the International hen tested to ASTM F	Field Quality Control A. Inspect units as they are installed. Do not install cracked, broken, twisted, curled, or otherwise	OWNER: UTAH STATE UNIVERSITY
08/UL 790. dance with ASTM D 471.	damaged units. B. As work progresses, exercise care not to scratch or mar installed units. Units damaged during	DATE: 12/19/2024
ches (52 mm) diameter, 1.2 sted inaccordance with UL	installation shall be immediately removed and discarded. C. After approximately 200 units have been installed, inspect roof from ground. Verify proper layout	REV DATE DESCRIPTION
e F (187 joules at 22 degrees	and appearance. Repeat inspection every 200 shingles. D. Visually inspect complete installation to ensure that it is weather tight.	
degrees C) tested in	A. Remove excess materials and debris from finished surfaces and adjacent roof areas. Do not allow work force on completed roof	
on or coating, or other ith temperature cycled	 Do not allow work lorce on completed root. C. Protect installed products until completion of project. D. Touch-up, repair or replace damaged products before Substantial Completion. 	
cceptance Criteria AC07		
xposure to ultraviolet (UV) lock.	A. Standards: USU complies with DFCM Standards and LEED requirements for new roofing	
n blue green algae in warm, with ASTM G 21.	systems. B. Protection Board: An impact-resistant board (Dens Dek Type) is preferred between the	
are (16.5 kg/sq. m).	 insulation and the roofing membrane to protect the surface sheet from damage. C. Walk Off Areas: Identify specific walk-off areas with supplemental roofing material designed for 	
uare (15 kg/sq. m). e and edges textured to ing ribs for added stress th	 the application. Contrasting color at walk-off areas is preferred. D. Patch & Repair of Existing Roofs: Patch and repair of older built-up roofing systems may require the use of a 4 phy ballocted medified control to the system. 	
mig mos ior audeu sitengin	necessary to match an existing condition.	SPECIFICATIONS
(16 mm) at bottom.		
03 and 229 mm) to create		





DIVISION 7 - CONTINUED

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07 5100 INSULATION

Materials: Insulation may be from whatever materials, designed for the specific application, which meet project requirements to achieve an energy efficient building envelope. All materials shall be installed per manufacturer's specifications.

07 5320 ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

- PART 1 GENERAL
- **Related Documents**
- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section. Summarv
- A. Section Includes:
- 1. Fully adhered 90 mil Sure-Seal/Sure-White ethylene-propylene-diene-monomer (EPDM) roofing system. 2. Vapor retarder.
- Roof insulation
- B. Related Requirements:
- 1. Section 06105 "Miscellaneous Carpentry" for wood nailers, curbs, and blocking and for wood-based, structural roof deck sheathing 2. Section 07540 "Preparation for Re-Roofing" for re-cover board beneath new roofing. 3. Section 07620 "Sheet Metal Flashing and Trim" for roof flashings and counter flashings
- fabricated of metal.
- Definitions A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.
- Preinstallation Meetings
- A. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at USU, Old Main Administration Building located at 1400 Old Main Hill, Logan, Utah. 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck
- Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment. 2. Review methods and procedures related to roofing installation, including manufacturer's
- written instructions.
- 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays. 4. Examine deck substrate conditions and finishes for compliance with requirements.
- including flatness and fastening.
- 5. Review structural loading limitations of roof deck during and after roofing.
- 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system. 7. Review governing regulations and requirements for insurance and certificates if applicable.
- 8. Review temporary protection requirements for roofing system during and after installation. 9. Review roof observation and repair procedures after roofing installation.
- B. Pre-installation Roofing Conference: Conduct conference at USU, Old Main Administration Building located at 1400 Old Main Hill, Logan, Utah.
- 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
- 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
- 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays. 4. Examine deck substrate conditions and finishes for compliance with requirements,
- including flatness and fastening. 5. Review structural loading limitations of roof deck during and after roofing.
- 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system. Review governing regulations and requirements for insurance and certificates if applicable.
- Review temporary protection requirements for roofing system during and after installation. 9. Review roof observation and repair procedures after roofing installation. Action Submittals
- A. Product Data: For each type of product.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work, including:
- Base flashings and membrane terminations.
- Tapered insulation, including slopes. Roof plan showing fastening spacings and patterns for mechanically fastened roofing. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: For the following products:
- 1. 12" x 12" Sheet roofing, of color required.
- **Information Submittals**
- A. Qualification Data: For Installer and manufacturer.
- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article. 1. Submit evidence of complying with performance requirements.
- C. Product Test Reports: For components of roofing system, tests performed by manufacturer
- and witnessed by a qualified testing agency. D. Research/Evaluation Reports: For components of roofing system, from ICC-ES.
- E. Field quality-control reports.
- F. Sample Warranties: For manufacturer's special warranties.
- **Closeout Submittals**
- A. Maintenance Data: For roofing system to include in maintenance manuals.
- Quality Assurance
- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for roofing system
- identical to that used for this Project. B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive
- manufacturer's special warranty.
- Delivery, Storage, and Handling A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components. B. Store liquid materials in their original undamaged containers in a clean, dry, protected location
- and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight. 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck. Field Conditions
- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- Warranty
- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, roof pavers, and other components of roofing system.
- 2. Warranty Period: 30 years from date of Substantial Completion.
- 3. Warranty shall include coverage for wind speeds up to 120 mph. B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following
- warranty period: 1. Warranty Period: 5 years from date of Substantial Completion.
- PART 2 PRODUCTS
- Manufacturers A. Source Limitations: Obtain components including roof insulation, fasteners, walkway protection for roofing system from same manufacturer as membrane roofing. The approved manufacturer is Carlisle SynTec Inc. for fully adhered 90 mil Sure-Seal/Sure-White ethylene-propylene-dienemonomer (EPDM) roofing system. No other manufacturers are approved.
- **Performance Requirements**

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- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, (wind speeds up to 120 mph.) thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight. 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when
- tested according to ASTM G 152, ASTM G 154, or ASTM G 155. 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing
- manufacturer based on testing and field experience. C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:

- 1. Corner Uplift Pressure: 120 mph. 2. Perimeter Uplift Pressure: 120 mph.
- Field-of-Roof Uplift Pressure: 120 mph. D. FM Global Listing: Roofing, base flashings, and component materials shall comply with
- requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and sha listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicab Identify materials with FM Global markings 1. Fire/Windstorm Classification: Class 1A-120.

- 2

- Hail-Resistance Rating: SH.
- E. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, on testing identical products by a qualified testing agency.
- F. Energy Performance: Roofing system shall have an initial solar reflectance of not less
- 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1. G. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof s
- indicated; testing by a qualified testing agency. Identify products with appropriate marki applicable testing agency.
- H. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated Identify products with appropriate markings of applicable testing agency. EPDM Roofin
- A. EPDM: ASTM D 4637, Type II, scrim or fabric internally reinforced, uniform, flexible EP
- 1. Carlisle Syntec Inc.
- 2. Thickness: 90 mils, nominal. 3. Exposed Face Color: White.
- Auxiliary Roofing Materials
- A. General: Auxiliary materials recommended by roofing system manufacturer for intended and compatible with roofing 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having
- iurisdiction. 2. Adhesives and sealants that are not on the exterior side of weather barrier shall co
- with the following limits for VOC content: a. Plastic Foam Adhesives: 50 g/L.
- b. Gypsum Board and Panel Adhesives: 50 g/L.
- c. Multipurpose Construction Adhesives: 70 g/L. d. Fiberglass Adhesives: 80 g/L.
- e. Single-Ply Roof Membrane Adhesives: 250 g/L.
- Single-Ply Roof Membrane Sealants: 450 g/L.
- Non-membrane Roof Sealants: 300 g/L.
- Sealant Primers for Nonporous Substrates: 250 g/L. Sealant Primers for Porous Substrates: 775 g/L.
- Other Adhesives and Sealants: 250 g/L.
- 3. Adhesives and sealants that are not on the exterior side of weather barrier shall co with the testing and product requirements of the California Department of Public He (formerly, the California Department of Health Services') "Standard Method for the and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers.'
- B. Sheet Flashing: 90-mil thick EPDM, partially cured or cured, according to application. Protection Sheet: Epichlorohydrin or neoprene nonreinforced flexible sheet, 55- to 60-m to 1.5 mm) thick, recommended by EPDM manufacturer for resistance to hydrocarbons
- aromatic solvents, grease, and oil. D. Bonding Adhesive: Manufacturer's standard.
- E. Modified Asphaltic Fabric-Backed Membrane Adhesive: Roofing system manufacturer's standard modified asphalt, asbestos-free, cold-applied adhesive formulated for compati and use with fabric-backed membrane roofing.
- . Water-Based, Fabric-Backed Membrane Adhesive: Roofing system manufacturer's stan water-based, cold-applied adhesive formulated for compatibility and use with fabric-bac membrane roofing.
- G. Low-Rise, Urethane, Fabric-Backed Membrane Adhesive: Roof system manufacturer's standard spray-applied, low-rise, two-component urethane adhesive formulated for com and use with fabric-backedmembrane roofing.
- H. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch mm-) wide minimum, butyl splice tape with release film]. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match mer
- roofinal. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- K. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated stee sheet, approximately 1 inch wide by 0.05 inch thick (25 mm wide by 1.3 mm thick), prepunched.
- M. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with co resistance provisions in FM Global 4470, designed for fastening membrane to substrate acceptable to roofing system manufacturer. N. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet

. Install insulation strips according to acoustical roof deck manufacturer's written instructions.

B. Complete terminations and base flashings and provide temporary seals to prevent water from

A. Install roofing system according to roofing system manufacturer's written instructions.

transition and to not void warranty for existing roofing system.

place or when rain is forecast.

Roofing Installation, General

 Perimeter Uplift Pressure: 120 mph. Field-of-Roof Uplift Pressure: 120 mph. 	A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.	building, and to building contents, caused by: a. lightning;
D. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and shall be	 Fasten substrate board to top of deck according to recommendations in FM Global's "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for specified Windstorm 	 b. peak gust wind speed exceeding 120 mph; c. fire;
listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.	Resistance Classification. 2 Fasten substrate board to top of deck to resist unlift pressure at corners, perimeter, and	 failure of roofing system substrate, including cracking, settlement, exces deterioration, and decomposition;
1. Fire/Windstorm Classification: Class 1A-120.	field of roof according to roofing system manufacturers' written instructions.	e. faulty construction of parapet walls, copings, chimneys, skylights, vents, supports, and other edge conditions and penetrations of the work.
 E. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, based an testing identical products by a gualified testing according. 	A. Self-Adhering-Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-	f. vapor condensation on bottom of roofing and
 F. Energy Performance: Roofing system shall have an initial solar reflectance of not less than 	sheet a minimum of 3-1/2inches (90 mm) and 6 inches (150 mm), respectively. Seal laps by	g. activity on rooming by others, including construction contractors, mainten personnel, other persons, and animals, whether authorized or unauthori
0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1. G. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes	rolling. B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air	When work has been damaged by any of foregoing causes, Warranty shall t until such damage has been repaired by Roofing Installer and until cost and
indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.	movement into roofing system. Insulation Installation	thereof have been paid by Owner or by another responsible party so designation 3. Roofing Installer is responsible for damage to work covered by this Warranty
H. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.	A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.	liable for consequential damages to building or building contents resulting fro faults or defects of work.
EPDM Roofing A. EPDM: ASTM D 4637, Type II, scrim or fabric internally reinforced, uniform, flexible EPDM	B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation	 During Warranty Period, if Owner allows alteration of work by anyone other t Installer, including cutting, patching, and maintenance in connection with period.
sheet.	 C. Install tapered insulation under area of roofing to conform to slopes indicated. D. Install insulation under area of roofing to aphieve required thickness. Where everall insulation 	attachment of other work, and positioning of anything on roof, this Warranty
2. Thickness: 90 mils, nominal.	thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each	covered by this Warranty. If Owner engages Roofing Installer to perform said
Auxiliary Roofing Materials	each direction.	shall have notified Owner in writing, showing reasonable cause for claim, that
A. General: Auxiliary materials recommended by rooting system manufacturer for intended use and compatible with roofing.	 Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and 	or termination of this Warranty.
 Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction. 	install composite board insulation for top layer. E. Trim surface of insulation where necessary at roof drains so completed surface is flush and	 During Warranty Period, if original use of roof is changed and it becomes us not originally specified for, a promenade, work deck, spray-cooled surface, fl
Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:	does not restrict flow of water. F. Install insulation with long joints of insulation in a continuous straight line with end joints	other use or service more severe than originally specified, this Warranty sha and void on date of said change, but only to the extent said change affects w
a. Plastic Foam Adhesives: 50 g/L.b. Gypsum Board and Panel Adhesives: 50 g/L.	staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.	this Warranty. 6. Owner shall promptly notify Roofing Installer of observed, known, or suspect
 c. Multipurpose Construction Adhesives: 70 g/L. d. Fiberglass Adhesives: 80 g/L. 	 Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations. G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows: 	defects, or deterioration and shall afford reasonable opportunity for Roofing inspect work and to examine evidence of such leaks, defects, or deterioratio
e. Single-Ply Roof Membrane Adhesives: 250 g/L. f. Single-Ply Roof Membrane Sealants: 450 g/L.	 Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft. (0.3 L/sq. m). and allow primer to dry. 	This Warranty is recognized to be the only warranty of Roofing Installer on s shall not operate to restrict or cut off Owner from other remedies and resource
g. Non-membrane Roof Sealants: 300 g/L. h. Sealant Primers for Nonporous Substrates: 250 g/L.	 Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg E (14 deg C) of equiviscous temperature. 	available to Owner in cases of roofing failure. Specifically, this Warranty sha relieve Roofing Installer of responsibility for performance of original work acc
i. Sealant Primers for Porous Substrates: 775 g/L.	 Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place 	requirements of the Contract Documents, regardless of whether Contract wa directly with Owner or a subcontract with Owner's General Contractor.
 Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the testing and product requirements of the California Department of Public Health's 	 Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place. 	E. IN WITNESS THEREOF, this instrument has been duly executed this
(formerly, the California Department of Health Services') "Standard Method for the Testing	 H. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using 	1. Authorized Signature:
Environmental Chambers."	insulation to deck type.	3. Title:
 Sneet Flashing: 90-mil thick EPDM, partially cured or cured, according to application. Protection Sheet: Epichlorohydrin or neoprene nonreinforced flexible sheet, 55- to 60-mil- (1.4 	 Fasten insulation according to requirements in FM Global's "RoofNav" for specified Windstorm Resistance Classification. 	07 5400 PREPARATION FOR RE-ROOFING
to 1.5 mm) thick, recommended by EPDM manufacturer for resistance to hydrocarbons, non- aromatic solvents, grease, and oil.	 Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof. Mechanically Fastened and Adhered Insulation: Install first layer of insulation to deck using 	PART 1 - GENERAL
 D. Bonding Adhesive: Manufacturer's standard. E. Modified Asphaltic Fabric-Backed Membrane Adhesive: Roofing system manufacturer's 	mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.	Related Documents A. Drawings and general provisions of the Contract, including General and Supplen
standard modified asphalt, asbestos-free, cold-applied adhesive formulated for compatibility and use with fabric-backed membrane roofing.	 Fasten first layer of insulation according to requirements in FM Global's "RoofNav" for specified Windstorm Resistance Classification. 	Conditions and Division 01 Specification Sections, apply to this Section. Summary
F. Water-Based, Fabric-Backed Membrane Adhesive: Roofing system manufacturer's standard water-based, cold-applied adhesive formulated for compatibility and use with fabric-backed	 Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof. Set each subsequent layer of insulation in a solid mopping of hot roofing asphalt, applied 	A. Section Includes: 1. Roof tear-off.
membrane roofing. G. Low-Rise. Urethane. Fabric-Backed Membrane Adhesive: Roof system manufacturer's	within plus or minus 25 deg F (14 deg C) of equiviscous temperature.	 Roof re-cover preparation. Removal of base flashings
standard spray-applied, low-rise, two-component urethane adhesive formulated for compatibility and use with fabric-backedmembrane roofing	firmly pressing and maintaining insulation in place.	Materials Ownership A Excent for items or materials indicated to be reused, reinstalled, or otherwise ind
 H. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch- (75- mm-) wide minimum, butyl splice tape with release film] 	adhesive, firmly pressing and maintaining insulation in place.	remain Owner's property, demolished materials shall become Contractor's prope
I. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane	 K. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between covers. Offset joints of insulation below a minimum of 6 inches (150 mm) in 	Definitions
J. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.	each direction. Loosely butt cover boards together and fasten to roof deck.	A. Rooting Terminology: Refer to ASTM D 1079 and glossary in NRCA's The NRC Waterproofing Manual" for definition of terms related to roofing work in this Section
approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.	Windstorm Resistance Classification.	 Existing Membrane Roofing System: Single-ply roofing membrane, roof insulation and components and accessories between deck and roofing membrane.
sheet, approximately 1 inch wide by 0.05 inch thick (25 mm wide by 1.3 mm thick),	 L. Installation 	 C. Roof Re-Cover Preparation: Existing roofing membrane that is to remain and be reuse.
M. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-	 Proper decking for the substrate shall be provided to receive the Sure-Seal Roofing System. 	D. Roof Tear-Off: Removal of existing membrane roofing system from deck, walls, penetrations.
resistance provisions in FM Global 4470, designed for fastening membrane to substrate, and acceptable to roofing system manufacturer.	 Substrates must be clean, smooth, dry, and free of fins, loose or foreign materials, oils, grease and roof cements. 	 Sweep, Blow or Vacuum all debris off the roof deck. Remove: Detach items from existing construction and legally dispose of them of
 N. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, 	 Ensure parapet substrates are suitable for adhering membrane flashings; where sheathing is required, ply-wood is strongly recommended, minimum exterior grade gypsum board 	indicated to be removed and reinstalled. F. Existing to Remain: Existing items of construction that are not indicated to be re
reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.	(conforming to CSA A82.27-M1977) is required.4. Insulation must be compatible with roof membrane systems.	Action Submittals A. Product Data: For each type of product indicated.
 Provide white flashing accessories for white EPDM membrane roofing. Liquid Coating: Product specifically formulated for coating EPDM membrane roofing, as 	 Ensure plywood substrates are screwed (when EPDM applied directly over decks); alternatively, provide protection between nailed decks and membrane. 	Informational Submittals
follows: 1. Type: Acrylic emulsion complying with ASTM D 6083.	 M. FULLY ADHERED MEMBRANE - 90 mil Sure-Seal/Sure-White EPDM 1. Position membrane and allow to relax for approximately 30 minutes. 	 B. Fastener pull-out test report. C. Photographs or Videotape: Show existing conditions of adjoining construction at
 Type: Chlorosulfonated polyethylene complying with ASTM D 3468. Color: White 	Fold sheet back exposing half of the underside; ensure fold is smooth without wrinkles or buckles	improvements, including exterior and interior finish surfaces that might be miscor
Substrate Boards A Substrate Board: ASTM C 1177/C 1177M glass-mat_water-resistant gypsum substrate_1/2	 Apply bonding adhesive evenly without globs or puddles, using a 225 mm (9") wide plastic core short nan paint roller to both the speet and the substrate 	Quality Assurance
inch (13 mm) thick. B. Substrate Board: ASTM C 728, perlite board, 3/4 inch (19 mm) Easteners: Eactory-coated steel	 Allow adhesives to dry until tacky, but not stringy to the touch; roll coated membrane into the coated substrate, avoiding wrinkles. 	 B. Regulatory Requirements: Comply with governing EPA notification regulations b
fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM	 Brush down the bonded half of the sheet, fold back unbonded half, and repeat the bonding procedure. 	jurisdiction. Spray tear-off with water to prevent blowing dust as needed.
Vapor Retarder A Solf Adhering Shoet Vapor Betarder: Delvethylene film lemineted to lever of hutul rubber	 Do not apply bonding adhesive to the splice area. Install adjacing short in the same mapper, everlap edges a minimum of 75 mm (3") 	A. Protect building to be reroofed, adjacent buildings, walkways, site improvements
adhesive, minimum 30-mil- (0.76-mm-) total thickness; maximum permeance rating of 0.1	Base Flashing Installation	plantings, and landscaping from damage or soiling from reroofing operations. B. Maintain access to existing walkways, corridors, and other adjacent occupied or
Provide primer when recommended by vapor-retarder manufacturer.	A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.	C. Conditions existing at time of inspection for bidding will be maintained by Owner practical.
B. Glass-Fiber Felts: ASTM D 2178, Type IV, asphalt impregnated. Roof Insulation	B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.	D. Clean up shall occur daily to prevent debris from scattering through the facility or properties
A. General: Preformed roof insulation boards manufactured or approved by EPDM roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of	C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.	E. Weather Limitations: Proceed with reroofing preparation only when existing and weather conditions permit Work to proceed without water entering existing roofing
thicknesses indicated and that produce FM Global-approved roof insulation. B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber	D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of	building. F. Hazardous Materials: It is not expected that hazardous materials such as asbes
mat facer on both major surfaces. C. Composite Polyisocyanurate Board Insulation: ASTM C 1289, with factory-applied facing board	sheet flashing terminations. E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through	materials will be encountered in the Work.
on one major surface, as indicated below by type, and felt or glass-fiber mat facer on the other. D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per	termination bars. Coating Installation	immediately notify Architect and Owner in writing. Hazardous materials will a Owner under a separate contract
12 inches (1:48) unless otherwise indicated.	A. Apply coatings to roofing and base flashings according to manufacturer's written recommendations, by spray, roller, or other suitable application method.	 G. Protect above roof gas line and coordinate any damage, testing and replacemen lines to working condition shall be the contractor's responsibility.
indicated for sloping to drain. Fabricate to slopes indicated.	Field Quality Control	PART 3 - EXECUTION
A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing	preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to Architect	A. Coordinate with Owner to shut down air-intake equipment in the vicinity of the W
 B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion- resistance provisions in EM Global 4470, designed for fastening roof insulation and cover 	 B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion 	activate smoke detectors in the ductwork.
boards to substrate, and acceptable to roofing system manufacturer.	 C. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements. 	B. During removal operations, have sufficient and suitable materials on-site to facilit installation of temporary protection in the event of unexpected rain.
 Insulation Adhesive. Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows: Medicad probability of adhesive 	 D. Additional testing and inspecting, at Contractor's expense, will be performed to determine if 	C. Maintain roof drains in functioning condition to ensure roof drainage at end of ea Prevent debris from entering or blocking roof drains and conductors. Use roof-
 Modified asphaltic, asbestos-nee, coid-applied adnesive. Bead-applied, low-rise, one-component or multicomponent urethane adhesive. Fail the applied address of the address of th	Protecting and Cleaning	specifically designed for this purpose. Remove roof-drain plugs at end of each w no work is taking place, or when rain is forecast. Rags are no acceptable.
 component uretnane adhesive. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch 	 Protect memorane rooting system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and demonstruction does not affect or endanger roofing, inspect roofing for 	 If roof drains are temporarily blocked or unserviceable due to roofing system partial installation of new membrane roofing system, provide alternative drain
(13 mm). E. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric, water	deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.	remove water and eliminate ponding. Do not permit water to enter into or ur membrane roofing system components that are to remain. Any damaged or
permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.	B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates, and repair or reinstall membrane roofing system to a condition	materials will be replaced by the contractor at no additional cost to the Owne D. Verify that rooftop utilities and service piping have been shut off before beginning
PART 3 - EXECUTION Examination	free of damage and deterioration at time of Substantial Completion and according to warranty requirements.	Roof Tear-Off A. General: Notify Owner each day of extent of roof tear-off proposed for that day
A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:	C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.	 B. Roof Tear-Off: Remove existing roofing membrane and other membrane roofing components down to the deck
 Verify that roof openings and penetrations are in place, curbs are set and braced, and roof- drain bodies are securely clamped in place. 	Roofing Installer's Warranty A. WHEREAS	 Remove cover boards, roof insulation, and substrate boards. Remove fasteners from deck
 Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation 	called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:	 Control asteries from deck. Verify condition of (E) substrate and notify Owner's rep of any deterioration of locations.
 B. Proceed with installation only after unsatisfactory conditions have been corrected. Prepration 	1. Owner: Utah State University 2. Address: 1400 Old Main Hill Logan, Utah 94322	 Clean brick and concrete wall surfaces where roofing and/or sealant has been vertical.
 A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturaria written instructions. Parasus above 	 Acceptone Date: Acceptone Date: 	5. Protect existing mechanical, electrical and plumbing systems at roof location
projections.	 Acceptance Date Warranty Period: Evaluation Date. 	required for new work reinstall to original condition or better.6. Provide notice to Owners rep for inspection of (E) roof after tear off and prior
 Prevent materials from entering and clogging root drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking 	 c. Expiration Date: B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a 	Deck Preparation A. Inspect deck after tear-off of membrane roofing system.

- 3

Substrate Board Installation

subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition. D. This Warranty is made subject to the following terms and conditions:

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entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing. C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of

E. D. If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect.

4

F. immediately notify Architect in writing. Do not proceed with installation until directed by Architect.

 Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by: 	Existing Base Flashings A. Remove existing base flashings and penetration flashings around parapets, curbs, walls, and	
 a. lightning; b. peak gust wind speed exceeding 120 mph; a. first 	penetrations where shown on construction documents. 1. Clean substrates of contaminants such as asphalt, sheet materials, dirt, and debris.	
 d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition; 	B. Do not damage metal counterliasnings that are to remain. Replace metal counterliasnings damaged during removal with counterflashings of same metal, weight or thickness, and finish. Disposal	
 faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work; 	 A. Collect demolished materials and place in containers. Promptly dispose of demolished materials daily. Do not allow demolished materials to accumulate on-site. 	Uncommon
 f. vapor condensation on bottom of roofing; and g. activity on roofing by others, including construction contractors, maintenance 	 Storage or sale of demolished items or materials on-site is not permitted. B. Transport and legally dispose of demolished materials off Owner's property. 	architects
 personnel, other persons, and animals, whether authorized or unauthorized by Owner. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense 	07 5419 POLYVINYL-CHLORIDE (PVC) ROOFING	4040 W DAYBREAK PKWY uncommonarch.com SOUTH JORDAN, UT 84009 (801) 417-9951
thereof have been paid by Owner or by another responsible party so designated.3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for some monthly demonstrate building on building contracts are used in a formulation of the source of	PART 1 - GENERAL Related Documents	
faults or defects of work. 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing	A. Drawings and general provisions of the Contract, including General and Supplementary D Conditions and Division 01 Specification Sections, apply to this Section.	
Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become	A. Section Includes: 1. Adhered polyvinyl-chloride (PVC) roofing system.	CENSED ARCH
null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations,	 Mechanically fastened polyvinyl-chloride (PVC) roofing system. Vapor retarder. 	AND OTES
shall have notified Owner in writing, showing reasonable cause for claim, that said a limitation alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation	 4. Roof insulation. B. Related Requirements: 1. [Section 061000 "Rough Corports."] [Section 061053 "Miscellancous Rough Corports."] for 	3 Dan / mar
or termination of this Warranty. 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was	 Section 061000 Rough Carpentry [[Section 061053 Miscellaneous Rough Carpentry] for wood nailers, curbs, and blocking; and for wood-based, structural-use roof deck panels. Section 061600 "Sheathing" for wood-based, structural-use roof deck panels. 	DARIN M. MANO
not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null	 Section 070150.19 "Preparation for Re-Roofing" for re-cover board beneath new roofing. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and 	9502000-0301 USU PR ROOF
and void on date of said change, but only to the extent said change affects work covered by this Warranty. 6 Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks	counterflashings. 5. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.	12/18/2024
defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.	 Section 221423 Storm Drainage Piping Speciatiles for foor drains. Definitions A. Roofing Terminology: Definitions in ASTM D 1079 and glossary in NRCA's "The NRCA Roofing 	
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully	and Waterproofing Manual" apply to work of this Section. Preinstallation Meetings	
available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract.	A. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site.	
directly with Owner or a subcontract with Owner's General Contractor. E. IN WITNESS THEREOF, this instrument has been duly executed this day of	 Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of 	
1. Authorized Signature:	 Review methods and procedures related to roofing installation, including manufacturer's 	
2. Name: 3. Title:	written instructions. 3. Review and finalize construction schedule, and verify availability of materials, Installer's	
07 5400 PREPARATION FOR RE-ROOFING	 personnel, equipment, and facilities needed to make progress and avoid delays. Review deck substrate requirements for conditions and finishes, including flatness and fastening 	
PART 1 - GENERAL Related Documents	 Review structural loading limitations of roof deck during and after roofing. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment 	
 A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section. 	 curbs, and condition of other construction that affects roofing system. 7. Review governing regulations and requirements for insurance and certificates if applicable. 	
A. Section Includes: 1. Roof tear-off.	 Review temporary protection requirements for rooting system during and after installation. Review roof observation and repair procedures after roofing installation. B. Preinstallation Roofing Conference: Conduct conference at Project site two weeks before 	
 Roof re-cover preparation. Removal of base flashings. 	scheduled start of roof system installation. 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency	
Materials Ownership A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be	representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof mounted acuimment	
removed from Project site and disposed of in a legal disposal site. Definitions	 Review methods and procedures related to roofing installation, including manufacturer's written instructions. 	
A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.	Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.	
 B. Existing Membrane Roofing System: Single-ply roofing membrane, roof insulation, surfacing, and components and accessories between deck and roofing membrane. C. Roof Re-Cover Preparation: Existing roofing membrane that is to remain and be prepared for 	 Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening. Review structural loading limitations of roof deck during and after roofing 	S
reuse.D. Roof Tear-Off: Removal of existing membrane roofing system from deck, walls, curbs and	 Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system. 	
penetrations. 1. Sweep, Blow or Vacuum all debris off the roof deck.	 Review governing regulations and requirements for insurance and certificates if applicable. Review temporary protection requirements for roofing system during and after installation. 	
 E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled. E. Existing to Remain: Existing items of construction that are not indicated to be removed. 	9. Review roof observation and repair procedures after roofing installation	
Action Submittals A. Product Data: For each type of product indicated.	 B. LEED Submittals: 1. Product Data for Credit SS 7.2: For roof materials, documentation indicating that roof 	Ö
Informational Submittals A. Qualification Data: For Installer.	materials comply with Solar Reflectance Index requirement.Product Data for Credit IEQ 4.1: For adhesives and sealants used inside the	V
 B. Fastener pull-out test report. C. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces that might be misconstrued as 	weatherproofing system, documentation including printed statement of VOC content. C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work including:	
having been damaged by reroofing operations. Submit to the Architect before work begins. Quality Assurance	 Base flashings and membrane terminations. Tapered insulation, including slopes. 	
A. Installer Qualifications: Installer of new membrane roofing system.B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning	 Roof plan showing orientation of steel roof deck and orientation of roofing, fastening spacings, and patterns for mechanically fastened roofing. 	
jurisdiction. Spray tear-off with water to prevent blowing dust as needed.	 D. Samples for Verification: For the following products: 1. Sheet roofing, of color required. 	Ĕ
 Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations. 	2. Walkway pads or rolls, of color required. Information Submittals	
 B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. C. Conditions existing at time of inspection for bidding will be maintained by Owner as far as 	 A. Qualification Data: For Installer and manufacturer. B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system B. Complies with requirements specified in "Performance Requirements" Article 	
 D. Clean up shall occur daily to prevent debris from scattering through the facility or adjacent properties 	 Submit evidence of compliance with performance requirements. Product Test Reports: For components of roofing system, for tests performed by manufacturer 	
E. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or	and witnessed by a qualified testing agency. D. Research/Evaluation Reports: For components of roofing system, from ICC-ES.	A ⊤ A 1
 Duiloing. F. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work 	 Field quality-control reports. F. Sample Warranties: For manufacturer's special warranties. Closeout Submittals 	Щ Ш С Ц Ц Ц Ц Ц Ц
 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner in writing. Hazardous materials will be removed by 	A. Maintenance Data: For roofing system to include in maintenance manuals. Quality Assurance	
Owner under a separate contract. G. Protect above roof gas line and coordinate any damage, testing and replacement of existing	 A. Comply with the most current edition of the Utah Sate University Design Standards. B. Manufacturer Qualifications: A. ruelified menufacturer that is EM Clebel engreened for reafing system identical to that 	
PART 3 - EXECUTION Preparation	 A qualitied manufacturer that is FW Global approved for rooning system identical to that used for this Project. A company that has produced roofing materials and accessories of the type included in this 	
A. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air- intake louvers before proceeding with reroofing work that could affect indoor air quality or	section for at least 5 years. C. Installer Qualifications:	
 activate smoke detectors in the ductwork. B. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temperature protection in the event of uperpendent rain. 	 A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to	· · · · · · · · · · · · · · · · · · ·
 C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs 	installer is manufacturer-certified to install roofing systems of the type included in this section.	JOB NUMBER: 24265
specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast. Rags are no acceptable.	 The installer shall execute the entire project with a single crew and superintendent. Installer supervision: Have installer identify a supervisor with at least 5 years of experience 	DATE: 12/19/2024
 If root drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing 	In the application of the type of PVC roofing; system in included in this section, to provide full-time review of roofing installation work. Delivery, Storage, and Handling	REV DATE DESCRIPTION
membrane roofing system components that are to remain. Any damaged or wetted materials will be replaced by the contractor at no additional cost to the Owner or Architect.	 Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or 	
D. Verify that rooftop utilities and service piping have been shut off before beginning the Work Roof Tear-Off	listing agency markings, and directions for storing and mixing with other components. B. Store liquid materials in their original undamaged containers in a clean, dry, protected location	
 B. Roof Tear-Off: Remove existing roofing membrane and other membrane roofing system components down to the deck. 	and within the temperature range required by rooting system manufacturer. Protect stored liquid material from direct sunlight. 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf	
 Remove cover boards, roof insulation, and substrate boards. Remove fasteners from deck. 	life. C. Protect roof insulation materials from physical damage and from deterioration by sunlight,	
 Verify condition of (E) substrate and notify Owner's rep of any deterioration or moisture locations. Choose brick and concrete well surfaces where reafine and the second se	moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation. A	
 The second process of the secon	deflection of deck. Field Conditions	
required for new work reinstall to original condition or better.6. Provide notice to Owners rep for inspection of (E) roof after tear off and prior to new work	A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions	
Deck Preparation A. Inspect deck after tear-off of membrane roofing system. B. Verify that substrate is visibly dry and free of mainture.	and warranty requirements. Warranty A Special Warranty: Manufacturer agrees to repair or replace components of recting system that	SPECIFICATIONS
 c. Verify that substrate is visibly dry and free of moisture. C. If broken or loose fasteners that secure deck panels to one another or to structure are observed or if deck appears or feels inadequately attached, immediately notify Architect. Do not proceed 	 A. Special warranty, manuacturer agrees to repair or replace components of rooting system that fail in materials or workmanship within specified warranty period. 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners 	
with installation until D. directed by Architect in writing.	cover boards, substrate board, roofing accessories, and other components of roofing system.	
- Unumeric survice is not survivable for receiving new rooting or it structural integrity of deck is	Z WAILAUW PEUDO: ZU VEALS ITOM DATE OF SUBSTANTIAL COMPLETION	

DIVISION 7 - CONTINUED

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PART 2 - PRODUCTS Manufacturers

- A. Source Limitations: Obtain components including roof insulation fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.
- **Performance Requirments**
- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
- 1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155. 2. Impact Resistance: Roofing system shall resist impact damage when tested according to
- ASTM D 3746 or ASTM D 4272. B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing
- manufacturer based on testing and field experience. C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift
- 1. Corner Uplift Pressure: <Insert lbf/sq. ft. (kPa/sq. m)>.
- 2. Perimeter Uplift Pressure: <Insert lbf/sq. ft. (kPa/sq. m)>. Field-of-Roof Uplift Pressure: <Insert lbf/sq. ft. (kPa/sq. m)>.
- D. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a built-up roofing system, and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings. 1. Fire/Windstorm Classification: Class 1A-90.
- Hail-Resistance Rating: SH.
- E. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency. F. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes
- indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency. G. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated.
- Identify products with appropriate markings of applicable testing agency.
- **PVC Roofing** A. PVC Sheet: ASTM D 4434/D 4434M, Type II, Grade I, glass-fiber reinforced, felt backed. 1. Manufacturers: Subject to compliance with requirements, provide products by one of the
 - followina a. Sarnafil Inc.; Sarnafil G410.
 - b. FiberTite a Seaman Corporation.
- Other Manufacturers may be considered upon review with NU. 2. Thickness: 80 mils, nominal.
- 3. Exposed Face Color: White.
- Auxilary Roofing Materials
- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
- 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having iurisdiction
- 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content:
- a. Plastic Foam Adhesives: 50 g/L.
- b. Gypsum Board and Panel Adhesives: 50 g/L c. Multipurpose Construction Adhesives: 70 g/L
- d. Fiberglass Adhesives: 80 g/L
- e. Single-Ply Roof Membrane Adhesives: 250 g/L.
- f. PVC Welding Compounds: 510 g/L.
- Adhesive Primer for Plastic: 650 g/L
- Single-Ply Roof Membrane Sealants: 450 g/L Nonmembrane Roof Sealants: 300 g/L.
- Sealant Primers for Nonporous Substrates: 250 g/L.
- Sealant Primers for Porous Substrates: 775 g/L.
- I. Other Adhesives and Sealants: 250 g/L B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch (25 mm wide by 1.3 mm) thick, prepunched. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-
- resistanceprovisions in FM Global 4470, designed for fastening roofing to substrate, and acceptable to roofing system manufacturer. G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet
- flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories. Substrate Boards
- A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch (13 mm) thick, factory primed.
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following: a. CertainTeed Corporation
- b. Georgia-Pacific Building Products.
- c. National Gypsum Company.
- d. Temple-Inland Building Products by Georgia-Pacific. B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosionresistance provisions in FM Global 4470, designed for fastening substrate board to roof deck.
- Vapor Retarder
- A. Glass-Fiber Base-Ply Sheet: ASTM D 2178, Type IV, asphalt-impregnated, glass-fiber felt.
- **Roof Insulation**
- A. General: Preformed roof insulation boards manufactured or approved by PVC roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of
- thicknesses indicated and that produce FM Global-approved roof insulation.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces. 1. Manufacturers: Subject to compliance with requirements, provide products by one of the
 - following:
 - a. Carlisle SynTec Incorporated
 - b. Firestone Building Products. c. GAF Materials Corporation.
- d. Johns Manville; a Berkshire Hathaway company. C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of <Insert slope> unless otherwise indicated.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- Insulation Accessories A. General: Roof insulation accessories recommended by insulation manufacturer for intended
- use and compatibility with roofing. B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-
- resistanceprovisions in FM Global 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer. C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach
- roof insulation to substrate or to another insulation layer as follows:
- 1. Full-spread spray-applied, low-rise, two-component urethane adhesive. D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch (13 mm) thick, factory primed.
- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following: a. CertainTeed Corporation
- b. Georgia-Pacific Building Products.
- c. National Gypsum Company.
- d. Temple-Inland Building Products by Georgia-Pacific.
- E. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.
- Ashalt Materials A. Roofing Asphalt: ASTM D 312, Type III or Type IV.
- B. Asphalt Primer: ASTM D 41/D 41M.
- PART 3 Execution Examination
- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:
- 1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roofdrain bodies are securely clamped in place.
- 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- Preparation A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

Roofing Installation. General

2

- Remove and discard temporary seals before beginning work on adjoining roofing. C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weath
- transition and to not void warranty for existing roofing system.
- Substrate Board Installation
- A. Install substrate board with long joints in continuous straight lines, perpendicular with end joints staggered between rows. Tightly butt substrate boards together. 1. Fasten substrate board to top flanges of steel deck according to recommendate Global's "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for spec Windstorm Resistance Classification.
- Vapor-Retarder Installation
- A. Built-up Vapor Retarder: Install two glass-fiber felt plies lapping each felt 19 inche preceding felt. Embed each felt in a solid mopping of hot roofing asphalt. Glaze co surface with hot roofing asphalt.
- B. Completely seal vapor retarder at terminations, obstructions, and penetrations to movement into roofing system. Insulation Installation
- A. Coordinate installing roofing system components so insulation is not exposed to p left exposed at the end of the workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for
- insulation. C. Install tapered insulation under area of roofing to conform to slopes indicated. 1. Survey for existing elevations substrate prior to installation of insulation to ide depressed areas in the substrate. Adjust or provide supplemental tapered inst
- ensure positive drainage of the roof. D. Install insulation under area of roofing to achieve required thickness. Where over thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints o succeeding layer staggered from joints of previous layer a minimum of 6 inches (1
- each direction. E. Trim surface of insulation where necessary at roof drains so completed surface is does not restrict flow of water
- Install insulation with long joints of insulation in a continuous straight line with end staggered between rows, abutting edges and ends between boards. Fill gaps exc inch (6 mm) with insulation
- 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penet G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follo 1. Set each laver of insulation in a uniform coverage of full-spread insulation ad
- pressing and maintaining insulation in place. H. Mechanically Fastened Insulation: Install each layer of insulation and secure to d mechanical fasteners specifically designed and sized for fastening specified board insulation to deck type. 1. Fasten insulation according to requirements in FM Global's "RoofNav" for spe
- Windstorm Resistance Classification. Mechanically Fastened and Adhered Insulation: Install each layer of insulation to mechanical fasteners specifically designed and sized for fastening specified board
- insulation to deck type. 1. Fasten first layer of insulation according to requirements in FM Global's "Roo specified Windstorm Resistance Classification.
- 2. Set each subsequent layer of insulation in a uniform coverage of full-spread adhesive, firmly pressing and maintaining insulation in place.
- J. Install cover boards over insulation with long joints in continuous straight lines with staggered between rows. Offset joints of insulation below a minimum of 6 inches
- each direction. Loosely butt cover boards together and fasten to roof deck. 1. Fasten cover boards according to requirements in FM Global's "RoofNav" for Windstorm Resistance Classification. Adhered Roofing installation
- A. Adhere roofing over area to receive roofing according to roofing system manufact instructions. Unroll roofing and allow to relax before retaining.
- . Install sheet according to ASTM D 5036. Start installation of roofing in presence of roofing system manufacturer's technical C. Accurately align roofing, and maintain uniform side and end laps of minimum dime
- required by manufacturer. Stagger end laps. D. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by
- manufacturer, and allow to partially dry before installing roofing. Do not apply to s roofing E. In addition to adhering, mechanically fasten roofing securely at terminations, pene

roofing installation on completion.

Protecting and Cleaning

1 2

they do not comply with specified requirements.

replaced or additional work complies with specified requirements.

recommended by manufacturer of affected construction.

Roofing Installation, General	07 6200 SHEET METAL ELASHING AND TRIM	Finishes A Comply with NAAMM's "Metal Einishes Manual for Architectural an
 A. Install rooting system according to rooting system manufacturer's written instructions. B. Complete terminations and base flashings and provide temporary seals to prevent water from 		recommendations for applying and designating finishes.
entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.	Related Documents	strippable, temporary protective covering before shipping.
C. Install roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty for existing roofing system.	A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.	C. Appearance of Finished Work: Variations in appearance of abuttin acceptable if they are within one-half of the range of approved Sam
Substrate Board Installation	Summary A This Section includes the following sheet metal flashing and trim	in the same piece are not acceptable. Variations in appearance of acceptable if they are within the range of approved Samples and a
with end joints staggered between rows. Tightly butt substrate boards together.	1. Manufactured reglets. 2. Formed low slope roof flocking and trim	minimize contrast.
Global's "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for specified	 Formed wall flashing and trim. 	Architect from full range of available standard colors.
Windstorm Resistance Classification. Vapor-Retarder Installation	4. Formed equipment support flashing.B. Related Sections include the following:	Examination
A. Built-up Vapor Retarder: Install two glass-fiber felt plies lapping each felt 19 inches over preceding felt. Embed each felt in a solid mopping of hot roofing asphalt. Glaze coat completed	 Division 6 Section "Miscellaneous Carpentry" for wood nailers, curbs, and blocking. Division 7 Section "EPDM" for installing sheet metal flashing and trim integral with roofing 	A. Examine substrates, areas, and conditions, with Installer present, to dimensions and other conditions affecting performance of work.
surface with hot roofing asphalt.	membrane.	 Verify that substrate is sound, dry, smooth, clean, sloped for dr anchored.
movement into roofing system.	hatches, vents, and other manufactured roof accessory units.	 Proceed with installation only after unsatisfactory conditions had Installation. General
A. Coordinate installation roofing system components so insulation is not exposed to precipitation or	Performance Requirements	1. General: Anchor sheet metal flashing and trim and other comp
left exposed at the end of the workday. B. Comply with roofing system and insulation manufacturer's written instructions for installing roof	A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and	welding rods, protective coatings, separators, sealants, and oth
insulation.	fastener disengagement. B. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to	required to complete sheet metal flashing and trim system. 2. Torch cutting of sheet metal flashing and trim is not permitted.
1. Survey for existing elevations substrate prior to installation of insulation to identify any depressed areas in the substrate. Adjust or provide supplemental tapered insulation to	building interior.	A. Metal Protection: Where dissimilar metals will contact each other of protect against galvanic action by painting contact surfaces with bit
ensure positive drainage of the roof.	A. Product Data: For each type of product indicated. Include construction details, material	permanent separation as recommended by fabricator or manufactu
thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each	 B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. 	install a course of felt underlayment and cover with a slip sheet
succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.	Distinguish between shop- and field-assembled work. Include the following: 1. Identify material, thickness, weight, and finish for each item and location in Project.	B. Install exposed sheet metal flashing and trim without excessive oil
E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.	 Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions. 	marks. C. Install sheet metal flashing and trim true to line and levels indicated
F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4	3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clins, cleats, and attachments to adjoining work	seams with minimum exposure of solder, welds, and elastomeric so D. Install sheet metal flashing and trim to fit substrates and to result in
inch (6 mm) with insulation.	 Details of expansion-joint covers, including showing direction of expansion and contraction. Details of expansion generative indicated including showing direction details, material 	Verify shapes and dimensions of surfaces to be covered before fab
G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:	descriptions, dimensions of individual components and profiles, and finishes.	Bend tabs over fasteners.
 Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place. 	D. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:	movement joints at a maximum of 10 feet (3 m) with no joints allow
H. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof	 Identify material, thickness, weight, and finish for each item and location in Project. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and 	mm) of corner or intersection. Where lapped or bayonet-type expa used or would not be sufficiently watertight, form expansion joints o
insulation to deck type.	dimensions.	flanges, not less than 1 inch (25 mm) deep, filled with elastomeric s joints.
Windstorm Resistance Classification.	including fasteners, clips, cleats, and attachments to adjoining work.	G. Fasteners: Use fasteners of sizes that will penetrate substrate not
 Mechanically Fastened and Adhered Insulation: Install each layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof 	4. Details of expansion-joint covers, including showing direction of expansion and contraction. Quality Assurance	1. Galvanized or Prepainted, Metallic-Coated Steel: Use stainles
insulation to deck type. 1. Fasten first layer of insulation according to requirements in FM Global's "RoofNav" for	A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual", Fourth Edition. Conform to dimensions and profiles shown unless more stringent	H. Soldered Joints: Clean surfaces to be soldered, removing oils and of sheets to be soldered to a width of 1-1/2 inches (38 mm) except
specified Windstorm Resistance Classification.	requirements are indicated.	would show in finished Work. 1. Do not use open-flame torches for soldering. Heat surfaces to
adhesive, firmly pressing and maintaining insulation in place.	A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling	solder into joints. Fill joints completely. Completely remove flu surfaces.
staggered between rows. Offset joints of below a minimum of 6 inches (150 mm) in	 B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent 	Roof Drainage System Installation
each direction. Loosely butt cover boards together and fasten to roof deck. 1. Fasten cover boards according to requirements in FM Global's "RoofNav" for specified	C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated	according to SMACNA recommendations and as indicated. Coordi
Windstorm Resistance Classification. Adhered Roofing installation	covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.	Roof Flashing Installation
A. Adhere roofing over area to receive roofing according to roofing system manufacturer's written instructions. Uproll roofing and allow to relax before retaining	Coordination A Coordinate installation of sheet metal flashing and trim with interfacing and adjoining	A. General: Install sheet metal roof flashing and trim to comply with p sheet metal manufacturer's written installation instructions, and SM
Install sheet according to ASTM D 5036. Start installation of reading in personnel	construction to provide a leakproof, secure, and noncorrosive installation.	Metal Manual." Provide concealed fasteners where possible, set u indicated. Install work with laps, joints, and seams that will be perr
 C. Accurately align roofing, and maintain uniform side and end laps of minimum dimensions 	Sheet Metals	B. Roof Edge Flashing: Anchor to resist uplift and outward forces acc in EMC Loss Prevention Data Sheet 1-49 for specified wind zone a
D. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by	 A. Exposed to view flashings & trim. 1. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited 	 Interlock bottom edge of roof edge flashing with continuous cle
manufacturer, and allow to partially dry before installing roofing. Do not apply to splice area of roofing.	chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal	C. Copings: Anchor to resist uplift and outward forces according to re
E. In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeter of roofing.	surfaces to comply with coating and resin manufacturers' written instructions 2. Fluoropolymer 3-coat system: Manufacturer's standard 3-coat, therocured system	Loss Prevention Data Sheet 1-49 for specified wind zone and as in 1. Interlock exterior bottom edge of coping with continuous cleats
F. Apply roofing with side laps shingled with slope of roof deck where possible.	consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat, and clear topcoat containing not less than 70	inch centers. 2. Anchor interior leg of coping with screw fasteners and washers
sheet flashings according to manufacturer's written instructions, to ensure a watertight seam	percent polyvinylidene fluoride resin by weight, with a minimum total dry film thickness of	D. Pipe or Post Counterflashing: Install counterflashing umbrella with edge flared for elastomeric sealant, extending a minimum of 4 inch
 Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut 	 a. Color: Custom color as selected by Architect to match existing. 	flashing. Install stainless-steeldraw band and tighten.
edges of sheet. 2. Verify field strength of seams a minimum of twice daily, and repair seam sample areas.	Underlayment Materials A. Felts: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.	Insert counterflashing in reglets or receivers and fit tightly to base f
 Repair tears, voids, and lapped seams in roofing that do not comply with requirements. H. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place 	Miscellaneous Materials A. General: Provide materials and types of fasteners, solder, protective coatings, separators,	counterflashing 4 inches (100 mm) over base flashing. Lap counter 4 inches (100 mm) and bed with elastomeric sealant.
with clamping ring. Mechanically Fastened Roofing Installation	sealants, and other miscellaneous items as required for complete sheet metal flashing and trim	F. Roof-Penetration Flashing: Coordinate installation of roof-penetrat roofing and other items penetrating roof. Install flashing as follows.
A. Mechanically fasten roofing over area to receive roofing according to roofing system	 B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and 	 Turn lead flashing down inside vent piping, being careful not to flashing
Install sheet according to ASTM D 5082.	bolts, and other suitable fasteners designed to withstand design loads.	 Seal with elastomeric sealant and clamp flashing to pipes pene flashing on yont piping
 B. Start installation of roofing in presence of roofing system manufacturer's technical personnel. C. Accurately align roofing, and maintain uniform side and end laps of minimum dimensions 	factory-applied coating. 2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex	Cleaning and Protection
required by manufacturer. Stagger end laps. D. Mechanically fasten or adhere roofing securely at terminations, penetrations, and perimeter of	washer head. 3 Blind Fasteners: High-strength aluminum or stainless-steel rivets	 Clean exposed metal surfaces of substances that interfere with uni weathering.
roofing.	 Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width 	 B. Clean and neutralize flux materials. Clean off excess solder and so C. Remove temporary protective coverings and strippable films as she
F. In-Seam Attachment: Secure one edge of PVC sheet using fastening plates or metal battens	C. Solder: ASTM B 32, Grade Sn50, use with rosin flux.	are installed. On completion of installation, clean finished surfaces fasteners, metal filings, pop rivet stems, and pieces of flashing. Ma
G. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of roofing and	A. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of	during construction.
sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.	separate reglet and counterflashing pieces, and compatible with flashing indicated with factory- mitered and -welded corners and junctions.	beyond successful repair by finish touchup or similar minor repair p
 Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet. 	 Material: Galvanized steel, 0.0217 inch thick. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint. 	07 7100 GUTTERBRUSH GUTTER GUARDS
 Verify field strength of seams a minimum of twice daily, and repair seam sample areas. Repair tears yoids and lapped seams in roofing that do not comply with requirements. 	3. Flexible Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible	PART 1 - GENERAL
H. Spread sealant bed over deck-drain flange at roof drains, and securely seal roofing in place with clamping ring	where Drawings show reglet without metal counterflashing.	Summary A Work Includes
Base Flashing Installation	4. Counterliasning wind-Restraint Clips: Provide clips to be installed before counterliasning to prevent wind uplift of counterflashing lower edge.	Other Brush polypropylene gutter guards that insert into the rol Determine and polypropylene gutter guards that insert into the rol
 A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions. 	Fabrication, General A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in	 Determine proper size of GutterBrush for the gutter. Clean gutters prior to installing.
B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.	SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field	 B. Related Sections 1. Master Format ™ 2004 Section 07 71 23 - Gutters and Downs
C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing	measurements for accurate fit before shop fabrication.	 Master Format [™] 2004 Section 07 70 00 - Roof and Wall Spectrum Master Format [™] 2004 Section 07 72 00 - Roof Accessories
D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side	performance requirements, but not less than that specified for each application and metal.	 Division 7: Thermal and Moisture Protection.
 E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination here 	and true to line and levels indicated, with exposed edges folded back to form hems.	A. Components
Field Quality Control	 Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder. 	bristles and galvanized wire.
A. Testing Agency: Owner will engage a qualified testing agency to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components.	D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.	Submittals A. For Review
and to furnish reports to Architect. B. Flood Testing: Flood test each roofing area for leaks according to recommendations in ASTM	E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used form expansion joints of intermeshing booked flanges, not less than 1 inch (25 mm)	1. Cut Sheets with descriptions of product(s) and installation instr Quality Assurance
D 5957, after completing roofing and flashing but before overlying construction is placed. Install temporary containment assemblies, plug or dam drains, and flood with petable water.	deep, filled with elastomeric sealant concealed within joints.	A. Installer shall 1 Be acceptable by owner
 Flood to an average depth of 2-1/2 inches (65 mm) with a minimum depth of 1 inch (25 mm) and not averaging a depth of 4 inches (400 mm). Maintain 0 inches (50 mm) and not average depth of 4 inches (400 mm). 	flashing and trim, unless otherwise indicated.	 Installer shall have at least 1 year experience installing the spe and gutter protection
clearance from top of base flashing.	 Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal. 	Warranty
 Flood each area for 48 hours. After flood testing, repair leaks, repeat flood tests, and make further repairs until roofing 	 Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and FMG Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being 	 A. 10 Year Warranty 1. Provide warranty information from manufacturer covering again
and flashing installations are watertight. C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect	secured. H. Downspouts: Fabricate square open faced SMACNA figure 132H downspouts complete with	PART 2 - PRODUCT Acceptable Manufacturer

- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect D. Repair or remove and replace components of roofing system where inspections indicate that
- . Additional testing and inspecting, at Contractor's expense, will be performed to determine if
- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements. C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures
 - Fabricate from the following material: 1. Galvanized Steel: [0.0336 inch (0.85 mm)] thick L. Base Flashing: Fabricate from the following material:
 - Galvanized Steel: [0.0276 inch (0.7 mm)] thick.

Miter corners, seal, and solder or weld watertight.

2. Fabricate copings from the following material:

1. Joint Style: 1" vertical standing interlocking seam.

a. Non-Viewable: Galvanized Steel: 0.0396 inch thick.

- M. Counterflashing: Fabricate from the following material:
- 1. Galvanized Steel: [0.0217 inch (0.55 mm)] thick.
- N. Flashing Receivers: Fabricate from the following material: . Galvanized Steel: [0.0217 inch (0.55 mm)] thick.
- O. Roof-Penetration Flashing: Fabricate from the following material: 1. Galvanized Steel: [0.0276 inch (0.7 mm)] thick.

mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.

a. Aluminum: 0.024 inch (0.6 mm) thick. Factory finished (3) coat Kynar 500 finish. Gutters: Fabricate gutters as recommended by SMACNA GIGI-2 Style H - hanging gutter

Copings: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 10-foot- (3-m-)

long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous

cleats to support edge of external leg and [drill elongated holes for fasteners on] interior leg.

K. Roof to Wall Transition and Roof to Sheet Metal Roof Edging Transition Expansion-Joint Cover:

b. View exposed: Prepainted. Metallic-Coated Steel: 0.0396 inch thick.

1. Manufactured Hanger Style: Conceal Hanger - SMACNA Plate 134A.

installation. Aluminum 0.024 inch thick factory finished 3 coat Kynar 500.

2. Fabricate downspouts from the following material:

consists of individual polypropylene

- ation instructions.

- ering against material defects.
- Acceptable Manufacturer GutterBrush LLC Phone: Online 855 Aquidneck Ave. Unit 6 888-397-9433 www.gutterbrush.com
- Middletown, RI 02842
- Materials A. Materials

- 1. UV treated polypropylene bristles
- 2. Galvanized steel wire
- 3. Available sizes are 4 inch, 5 inch, 6 inch, 7 inch and 8 inch commercial.
- A. Mill galvanized steel wire and black UV treated bristles.
- 1. Validate that the gutter is clean, has been installed and sloped correctly with correct spacing and number of downspouts prior to installing.
- PART 3 EXECUTION Examination A. Gutter

- A. Comply with architectural guidelines. Follow manufacturer's written installation instructions.

ectural and Metal Products" for

07 7200 SNOW GUARDS - L-BRACKET

1. No-Flash 2 or 3 pipe snow fence brackets.

1. Section 07600 Flashings and Sheet Metal

2. Division 7 Thermal and Moisture Protection

3. 1" Outside Diameter Tubing.

1.5 DELIVERY, STORAGE AND HANDLING

(877) 414-7606 / www.rockymountainsnowguards.com

on one end for attachment to adjacent tube.

i. No-Flash Bracket - upright in .25" thick copper

tube inserted into the copper tube for reinforcement.

B. Follow manufacturer's installation instructions and layout guide.

2. Provide necessary components: RG16 Snow Guard and Adhesive.

B. Design - To be recommended by Manufacturer or Structural Engineer.

iv. Tubing Caps are 302 stainless steel

i. No-Flash Bracket - upright in extruded 6061-T6 aluminum.

v. Tubing Collars are 6061-T6 aluminum with stainless steel set screws.

vi. Ice Flags are 6061-T6 aluminum with stainless tightening bolt and nut.

3. Provide approved fasteners for attachment of brackets.

3. Division 1 Administrative and procedural requirements

2. Appropriate fasteners to attach baseplate to roof structure.

2. Structure must be able to withstand snow load held on roof.

1. Bracket and row spacing to be determined by manufacturer or engineer.

A. Submit manufacturer's specifications, detail drawings, recommended layout and installation

A. Installer to be experienced in the installation of roofing materials and snow retention products.

A. Material to be inspected upon delivery for damage and stored in a safe, dry location prior to

Rocky Mountain Snow Guards, Inc., 4231 S. Natches Court, Unit C, Englewood, CO 80110

ii. No-Flash Bracket - baseplate in 11 gauge (1/8" nominal) with two 3/8" threaded studs

welded to the baseplate and 4 tapered 3/8" holes for screw attachment to the roof deck.

iii. Tubing is 6061-T6 aluminum with 1" outside diameter and .0125 wall thickness, swaged

ii. No-Flash Bracket - baseplate in 11 gauge (1/8" nominal) 304 stainless steel with two 3/8"

iii. Tubing is 1" outside diameter copper tube with .75" outside diameter powder coated steel

threaded stainless steel studs welded to the base plate and 4 tapered 3/8" holes for screw

A. Verify structure will accommodate ground snow loads and drifting loads present at the job

A. Follow architectural drawings or drawings supplied by manufacturer for location of snow

A. Submit Manufacturers Specifications, recommended layout, product drawings and installation

A. Inspect material upon delivery and inform distributer of any damaged or missing items. Protect

A. Installer to be experienced in roofing and snow retention for a minimum of not less than 5

A. Rocky Mountain Snow Guards, Inc. 2055 S. Raritan, Denver, CO 80223, (877) 414-7606,

A. Inspect roof structure to insure it will withstand snow loads. Correct all problems before

A. Install according to architects drawing and manufacturer's instructions.

2. Provide appropriate snow bracket and snow bracket accessories for the roofing system.

1. No-Flash Bracket system comprised of 2 or 3 pipe upright, baseplate and stainless steel

PART 1-GENERAL

A. WORK INCLUDES

1.2 SYSTEM DESCRIPTION

4. Tubing Caps

Tubing Collars

B. DESIGN REQUIREMENTS

6. Ice Flags

7. Ice Screen

1.4 QUALITY ASSURANCE

2.1 MANUFACTURER

A. Aluminum System Components:

B. Copper System Components:

attachment to the roof deck.

iv. Tubing Caps are copper

B. Powder coated for an additional cost.

07 7200 SNOW GUARDS - RG16 SNOW GUARD

. Install RG16 Snow Guard to roof system.

Division 7⁻ Thermal and Moisture Protection

C. Section 07620 Sheet Metal Flashing and Trim

materials from damage until installation.

www.rockymountainsnowguards.com.

A. TGIC Polyester powder coating.

installation of snow guards.

A. RG16 Snow Guard 16 gauge electro galvanized steel.

A. All materials are mill finish

2.3 MATERIAL FINISH

PART 3 – EXECUTION

3.1 EXAMINATION

3.2 INSTALLATION

PART 1 - GENERAL

A. Work Includes

Related Sections

A. Components

instructions

Delivery/Storage

Manufacturer

B. Butyl Adhesive.

PART 3 - EXÉCUTIÓN

Materials

Examination

Installation

Finish

PART 2 - PRODUCTS

Quality Assurance

B. Section 07310 Shingles

1. RG16 Snow Guard.

2. Butyl Adhesive.

Summary

System

Submitta

brackets

site

v. Ice Flags are .25" x 4" wide copper

A. COMPONENTS

attachment nuts.

1.3 SUBMITTAL

instructions

installation

2.2 MATERIALS

PART 2 – PRODUCTS

B. RELATED SECTIONS

1.1 SUMMARY

4

aces from damage by applying a

e of abutting or adjacent pieces are oved Samples. Noticeable variations earance of other components are les and are assembled or installed to

ar 500 finish. Color as selected by

present, to verify actual locations,

ped for drainage, and securely

ditions have been corrected. ther components of the Work securely ovement. Use fasteners, solder,

nts, and other miscellaneous items as ach other or corrosive substrates,

es with bituminous coating or by other manufacturers of dissimilar metals. tly on cementitious or wood substrates, slip sheet or install a course of

essive oil canning, buckling, and tool

indicated. Provide uniform, neat tomeric sealant. o result in watertight performance.

before fabricating sheet metal. nchor each cleat with two fasteners. exposed flashing and trim. Space

oints allowed within 24 inches (600 type expansion provisions cannot be on joints of intermeshing hooked

stomeric sealant concealed within strate not less than 1-1/4 inches (32

se stainless-steel fasteners. g oils and foreign matter. Pretin edges

n) except where pretinned surface urfaces to receive solder and flow

remove flux and spatter from exposed

ice complete roof drainage system d. Coordinate installation of roof

mply with performance requirements[, s, and SMACNA's "Architectural Sheet ible, set units true to line, and level as vill be permanently watertight. forces according to recommendations

nd zone and as indicated. nuous cleats anchored to substrate at rding to recommendations in FMG

and as indicated. ous cleats anchored to substrate at 16-

d washers at 16-inch centers. orella with close-fitting collar with top

of 4 inches (100 mm) over base g with installation of base flashing.

to base flashing. Extend ap counterflashing joints a minimum of

-penetration flashing with installation of

eful not to block vent piping with pipes penetrating roof except for lead

re with uniform oxidation and

der and sealants. Ims as sheet metal flashing and trim surfaces, including removing unused shing. Maintain in a clean condition

naged or that have deteriorated or repair procedures.

nto the roof gutter.

nd Downspouts Wall Specialties and Accessories

ng the specified Gutters, downspouts,

info@gutterbrush.com



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JOB NUMBER: 24265 **OWNER:** UTAH STATE UNIVERSITY DATE: 12/19/2024

DESCRIPTION REV DATE

SPECIFICATIONS





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JOB NUMBER: 24265 **OWNER:** UTAH STATE UNIVERSITY DATE:

12/19/2024

REV DATE DESCRIPTION

OVERALL PLAN -SITE

AS101

GENERAL NOTES

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1. PLAN INDICATES MAJOR ROOF PENETRATIONS, THIS DOES NOT REPRESENT ALL PENETRATIONS BY ALL UTILITIES.

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- 2. CRICKET RIDGES TO RUN FLAT. CRICKETS TO BE SLOPED AT 1/4" PER FOOT MIN. CRICKETS AT EQUIPMENT TO BE AS REQUIRED TO MAINTAIN 1/4" PER FOOT SLOPE. EQUIPMENT LESS THAN 24" WIDE TO HAVE A 4" CANT STRIP ONLY AND NO CRICKET. CRICKETS ARE TO BE FORMED BY TAPERED ROOF INSULATION.
- 3. PROVIDE CAULKING AT ALL DISSIMILAR MATERIAL CONNECTIONS.

- 4. PROVIDE ELECTROLYSIS SEPARATION BETWEEN ALL DISSIMILAR METALS AS REQUIRED.
- 5. SEE TYPICAL PIPE PENETRATION DETAILS D5/A-502.
- 6. SINGLE PLY MEMBRANE (EPDM) IS INDICATED BY THE FOLLOWING SYMBOL:
- 7. DAVINCI ROOFSCAPES, ENGINEERED POLYMER, SHINGLES HAVING A CLASS A FIRE RESISTANCE INDICATED BY THE FOLLOWING SYMBOL:
- 8. DETACH, LIFT, RE-ATTACH ALL MECHANICAL EQUIPMENT, VENTS ETC. TO ALLOW FOR PROPER DETAILING OF CURBS AND ROOF SYSTEMS.
- 9. UPON REMOVAL OF EXISTING ROOFING SYSTEMS, CONTRACTOR TO REPAIR ROOF DECK BELOW AS REQUIRED PRIOR TO RE-ROOFING.
- 10. ALL WOOD NAILERS, CURBS, BLOCKING & ETC TO BE REPLACED WITH PRESSURE TREAETED WOOD. REPAIR OR REPLACE OTHER BACKING AS REQUIRED TO ALLOW FOR SOLID ATTACHEMENT TO ROOFING SYSTEM OR METAL FLASHING.
- 11. MIN. ROOF SLOPE SHALL BE 1/4" PER FOOT.
- 12. LANYARD TIE OFF ANCHOR: CB-18 FALL PROTECTION ANCHOR POINT INDICATED BY THE FOLLOWING SYMBOL:

(+)

NOTE: EAVE TOTAL LENGTH = 182'-01/8"

2 DEMOLITION ROOF PLAN 3/16" = 1'-0"

KEYED NOTE

704

203	REMOVE AND REPLACE EXISTING ROOF MATERIAL. PATCH AND REPAIR UNDERLAYMENT AS NEEDED. PREP FOR NEW ROOFING MATERIAL
204	REMOVE AND REPLACE EXISTING FLAT ROOF MATERIAL. PATCH AND REPAIR UNDERLAYMENT AS NEEDED. PREP FOR NEW ROOFING MATERIAL
205	EXISITNG MECHANICAL EQUIPMENT. RETAIN AND PROTECT DURING CONSTRUCTION.
206	EXISTING PIPE. RETAIN AND PROTECT DURING CONSRUCTION.
501	DECORATIVE IRON RAILING. REPLACE AS NEEDED. MATCH EXISTING.
502	EXISTING GUARDRAIL. REPLACE AS NEEDED. MATCH EXISTING.
702	INSTALL DAVINCI FANCY SHAKES ROOFING MATERIAL. PATCH AND
	REPAIR EXISTING UNDERLAYMENT AS NEEDED. INSTALL SNOW
703	REMOVE AND REPLACE EXISTING GUTTERS AND DOWNSPOUTS.

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REMOVE AND REPLACE EXISTING GUTTERS AND DOWNSPOUTS. REPLACE HEAT TRACE CABLES IN DOWNSPOUTS. INSTALL PVC SINGLE-PLY MEMBRANE OVER RIGID POLYISO INSULATION. INSTALL INSULATION AS REQUIRED TO ACHIEVE A MINIMUM OF 1/4" PER FOOT SLOPE. SNOW GUARD.

- 715 POWDER COATED SNOW FENCE SYSTEM. 716
- 2201 ROOF OVERFLOW DRAIN LOCATION. SEE PLUMBING PLANS.

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PUBLIC RELATIONS LOGAN, UT 84321 PERMIT SET

JOB NUMBER: 24265 **OWNER:** UTAH STATE UNIVERSITY DATE: 12/19/2024

DESCRIPTION REV DATE

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PUBLIC RELATIONS LOGAN, UT 84321 PERMIT SET

JOB NUMBER: 24265 **OWNER:** UTAH STATE UNIVERSITY DATE: 12/19/2024

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PHOTO DETAILS

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DESCRIPTION

2	1	
6" ENGINEERED		
RIDGE CAP OVE CAP W/ HEMED		
		D
AS REQUIRED BY EX		
REMOVE AND REPL/ WITH PLYWOOD TO		
<u> </u>		
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\star		
ICE AND WATER SHIELD E UP ROOF AND 36" ONTO F		0
UNDER VALLEY METAL AN		C
GRACE HIGH TEMP OR I		
30 # FELT BUILDING		
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-		
7		
AS REQUIRED BY EX CONDITIONS REMO		
DAMAGED SHEATHI TO MATCH EXISTING		
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		1				2
	Date: 12/17/2024 Power & Lighting	System Responsibility Designed By Furnished By	y Matrix / Installed By	Notes	SYMBOL	SYMBOLS LEGEND
	Service Equipment Upgrade Power and Distribution	NICNICDesign TeamContractor	NIC Contractor			
	Heat Trace	Design Team Contractor	Contractor		A5 E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-507 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
D					A5 E-201	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDIC ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAV SHEET WHERE ELEVATION OR SECTION IS SHOWN.
					A5 E-201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDIC ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAV SHEET WHERE ELEVATION OR SECTION IS SHOWN.
					ROOM NAME	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
					$\overline{1}$	KEYNOTE INDICATOR.
						REVISION INDICATOR.
					X-X XMDP	MECHANICAL EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. " IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER
						EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION. BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING
					\sim	BREAK, ROUND
					MATCH LINE SEE XX/X-XXX	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.
						NEW LINE: MEDIUM LINE.
						HIDDEN FEATURES LINE: HIDDEN, THIN LINE
C						
C						DEMOLITION LINE: DASHED, MEDIUM LINE
						PROPERTY LINE: DASHED, WIDE LINE.
					— - —	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
					XXX EF-X	ELECTRICAL EQUIPMENT INDICATOR. "XXX" INDICATES T EQUIPMENT OR EQUIPMENT ID. "EF-X" IDENTIFIES MECH. EQUIPMENT BEING SERVED. REFER TO EQUIPMENT SCH FOR ADDITIONAL INFORMATION.
					<u>X-X</u> 1LA-3	EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MA SHOWN ON EQUIPMENT SCHEDULE. "1LA-3" IDENTIFIES F EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SC FOR ADDITIONAL INFORMATION.
						THODS
_ _						WIRING.
						SINGLE BRANCH CIRCUIT HOME RUN TO PANELBOARD W
					A-1	NOTATION IDENTIFY PANEL AND CIRCUIT NUMBER.
						LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
					+	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. R
						TO ONE-LINE DIAGRAM.
					0	
В					•	SCHEDULE FOR REQUIREMENTS.
						ADDITIONAL INFORMATION.
					<u>6</u> ///	HEAT TRACE (HEATING CABLE FOR SNOWMELT).
					0 _{DP}	HEAT TRACE, VERTICAL RUN (DOWNSPOUTS).

GEND

TAIL NUMBER, E-501 DETAIL IS SHOWN.

EXTERIOR: A5 INDICATES 201 INDICATES DRAWING ION IS SHOWN.

NTERIOR: A5 INDICATES 201 INDICATES DRAWING ON IS SHOWN.

. "X-X" INDICATES MENT SCHEDULE. "XMDP" CUITED TO. REFER TO

"XXX" INDICATES TYPE OF " IDENTIFIES MECHANICAL TO EQUIPMENT SCHEDULE

ATES EQUIPMENT MARK "1LA-3" IDENTIFIES PANEL R TO EQUIPMENT SCHEDULE

O PANELBOARD WITH ETTER AND NUMBER CUIT NUMBER.

DRAWINGS AND MARK. DULE INDICATOR. REFER

ON. REFER TO EQUIPMENT

IDING RISER DIAGRAM FOR

3 SYMBOLS LEGEND SYMBOL DESCRIPTION ELECTRICAL POWER AND DISTRIBUTION 225/3 PANELBOARD WITH MAIN LUGS ONLY AND SURGE PROTECTION "1H

	WITH CIRCUIT BREAKER (ONE-LINE DIAGRAM).
M	METER.
Ŀ	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
٠	PUSHBUTTON.
VZA.	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#	DISTRIBUTION PANEL OR SWITCHBOARD.
	TRANSFORMER (SEE ONE-LINE FOR SIZE)
WIRING DE	VICES
₿	RECEPTACLE, DUPLEX: NEMA 5-20R.
₩w	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
₿	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
₩P	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
¢	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
× \$	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).

RECEPTACLE, DUPLEX, WITH USB OUTLET

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

	ABBREV		IONS
	NOTE: ALL ABBREVIAT	IONS MA	Y NOT BE USED.
1P 1PH	SINGLE POLE SINGLE-PHASE	kVAR kW	KILOVOLT AMPER
1WAY 2/C	ONE-WAY TWO-CONDUCTOR	kWh LED	KILOWATT HOUR
2WAY		LFMC	LIQUID TIGHT FLE
3WAY	THREE-WAY	LFNC	
40UT	QUADRUPLE RECEPTACLE OUTLET	LPS	LOW PRESSURE
4PDT 4PST	FOUR-POLE DOUBLE THROW FOUR-POLE SINGLE THROW	LRA LTG	LIGHTING
4W 4WAY	FOUR-WIRE FOUR-WAY	LV MATV	LOW VOLTAGE MASTER ANTENN
A AC	ABOVE COUNTER ARMORED CABLE	MAX	SYSTEM MAXIMUM
ACS	ACCESS CONTROL SYSTEM	MC MCA	METAL CLAD MINIMUM CIRCUI
		MCB MCC	MAIN CIRCUIT BR
AFF	ABOVE FINISHED FLOOR	MCP	
AFG AIC	ABOVE FINISHED GRADE	MG	MOTOR GENERA
ALUM	ALUMINUM	MH MIN	MANHOLE MINIMUM
AMP ANN	AMPERE ANNUNCIATOR	MLO MOCP	MAIN LUGS ONLY MAXIMUM OVERC
AP	ACCESS POINT (WIRELESS DATA)	MTS	PROTECTION MANUAL TRANSF
AR ASC	AS REQUIRED AMPS SHORT CIRCUIT	NA NC	NOT APPLICABLE
ATS	AUTOMATIC TRANSFER SWITCH	NEC NEMA	NATIONAL ELECT
AV AWG	AUDIO VISUAL AMERICAN WIRE GAGE		MANUFACTURER
BB XFMR	BUCK-BOOST TRANSFORMER	NFC NFPA	NATIONAL FIRE C
BFF	BELOW FINISHED FLOOR	NIC	ASSOCIATION
БFG C	CEILING MOUNTED	NL	
CAT CATV	CATEGORY COMMUNITY ANTENNA	NTS	NORMALLY OPEN
СВ	TELEVISION CIRCUIT BREAKER	OC OCP	ON CENTER
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT	OE OF/CI	OWNER ELECTRO
CCTV CF/CI	CLOSED CIRCUIT TELEVISION CONTRACTOR FURNISHED/	OF/OI	CONTRACTOR IN OWNER FURNISH
CF/OI	CONTRACTOR INSTALLED CONTRACTOR FURNISHED/	OFP	INSTALLED OBTAIN FROM PL
CFBA	OWNER INSTALLED CUSTOM FINISH AS SELECTED	OH DR OL	OVERHEAD (COIL OVERLOAD
CI	BY ARCHITECT CONTACT INDICATOR	PB	PUSHBUTTON
СКТ СМ	CIRCUIT CONSTRUCTION MANAGER	PH	PHASE
CND		PNL PNM	PANEL PLENUM
COR	CONVENIENCE OUTLET CONTRACTING OFFICER'S DEDRESENTATIVE	PR PS	PAIR POWER SUPPLY
CP	CONTROL PANEL	PT PTZ	POTENTIAL TRAN PAN/TILT/ZOOM
CR CT	CARD READER CURRENT TRANSFORMER	PV QTY	PHOTO VOLTAIC QUANTITY
CTV CU	CABLE TELEVISION COPPER	R RCP	REMOVE REFLECTED CEIL
dBA DPDT	UNIT OF SOUND LEVEL DOUBLE POLE, DOUBLE	RMC	RIGID METAL CON
DS	THROW DISCONNECT SWITCH	RO	REMOTE DOOR C
E EA	ENHANCED EACH	RPM RPP	REVOLUTIONS PE RISER PATCH PA
EM EMT	EMERGENCY	RR S/S	REMOVE AND RE START/STOP
ENT	ELECTRIC NONMETALLIC	SCA SCBA	SHORT CIRCUIT A
EPO		SEC	SELECTED BY AR SECURITY
EQUIP	EQUIPMENT EQUIPMENT ROOM	SF SFBA	SQUARE FOOT (F
EX F	EXISTING FURNITURE MOUNTED	SPD	SELECTED BY AR
FA FCP	FIRE ALARM FIRE ALARM CONTROL PANEL	SPDT	SINGLE POLE, DO
FLA FMC	FULL LOAD AMPS FLEXIBLE METAL CONDUIT	SPP	STATION PATCH
FOB FPP	FREIGHT ON BOARD	SPST	SINGLE POLE, SINGLE THROW
FVNR	FULL VOLTAGE	SWBD SWGR	SWITCHBOARD SWITCHGEAR
FVR	FULL VOLTAGE REVERSING	TL TP	TWIST LOCK TELEPHONE POL
GEN	GROUND FAULT INTERRUPTER	TP TR	TWISTED PAIR
GFP GIG	GROUND FAULT PROTECTION GIGA HERTZ	TTB	ROOM
GND HD	GROUND HEAVY DUTY	TV	
HID HOA	HIGH INTENSITY DISCHARGE HAND-OFF-AUTOMATIC		SUPPRESSER
HP HPF	HORSE POWER	UF	UNDERFLOOR
HPS	HIGH PRESSURE SODIUM	UGND UPS	
HV HWM		v	SUPPLY VOLTS
HZ	MANAGEMEN I HERTZ	VA VFC/VF	VOLT AMPERE VARIABLE FREQU
I/O IG	INPUT/ OUTPUT ISOLATED GROUND	D VIC	CONTROLLER VIDEO INTERCOM
IMC	INTERMEDIATE METAL CONDUIT	VSS VWM	VIDEO SURVEILLA
IN/IS IR	INSULATED/ ISOLATED INFRARED	W/	WITH
J-BOX kV	JUNCTION BOX KILOVOLT	WP	WEATHERPROOF
	-		

kVA KILOVOLT AMPERE

RPROOF WPP WIRELESS PATC XFMR TRANSFORMER

	GENERAL ELECTRICAL NOTES		
ERE REACTIVE R DIODE EXIBLE METAL EXIBLE METAL EXIBLE CONDUIT SODIUM AMPS INA TELEVISION IIT AMPS REAKER OL CENTER PROTECTION TION PANEL ATOR Y RCURRENT FER SWITCH E SED CTRICAL CODE PROTECTION ACT N	 CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESS ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLER MILL INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT. B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS AND THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER. C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT	D	U 4040 W DA SOUTH JOI
T PROTECTION RONICS SHED/ NSTALLED SHED/ OWNER PLANS ILING) DOOR	 SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER. ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ. 	С	
R NSFORMER NSFORMER NUSFORMER NDUIT AL CONDUIT OPEN PER MINUTE ANEL ELOCATE AMPS OR AS RCHITECT (FEET) SH AS RCHITECT CTIVE DEVICE OUBLE THROW PANEL NGLE THROW LE	ELECTRICAL COVER SHEET E001 ELECTRICAL COVER SHEET E002 ELECTRICAL NARRATIVE E003 ELECTRICAL SPECIFICATIONS E501 ELECTRICAL DETAILS E101 ELECTRICAL DETAILS E102 LEVEL 2 POWER PLAN	В	3LIC RELATIONS ROOF - USU
RMINAL BOARD TAGE SURGE BLE POWER			JOB NU OWNER DATE: REV
M SYSTEM LANCE SYSTEM MANAGEMENT OF CH PANEL		A	32 Sa WWM E
	5		E

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OB NUMBER: 24265 **WNER:** UTAH STATE UNIVERSITY ATE: 12/18/2024 REV DATE DESCRIPTION

ELECTRICAL COVER SHEET

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USU PR BUILDING RE-ROOF PROJECT

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UNCOMMON ARCHITECTS PROJECT NUMBER: 24265

ELECTRICAL SYSTEMS

CODES, STANDARDS, AND REFERENCE MATERIALS

Codes, Standards, and Guidelines, which are applicable to the design of the electrical systems, are listed below. Comply with each of the latest adopted publications: ADA, Americans with Disabilities Act

Division of Facilities Construction and Management (DFCM), Design Requirements

Division of Facilities Construction and Management (DFCM), State Buildings Energy Standard

Division of Facilities Construction and Management (DFCM), High Performance Building Standard

Utah State University Design Standards International Energy Conservation Code (IECC) 2021 / ASHRAE 90.1 Energy Code

EIA/TIA, Electronics Industries Association/Telecommunications Industry Association International Building Code (IBC)

IESNA, Illuminating Engineering Society of North America NFPA, National Fire Protection Association (applicable sections including but not limited to):

NFPA 70, National Electrical Code 2020

NFPA 72, National Fire Alarm Code NFPA 101, Life Safety Code UL, Underwriter's Laboratories

Utah State University Fire Marshal Laws, Rules and Regulations

Electrical Systems Responsibility Summary

	System Responsibility Matrix Designed By Furnished By Installed By Notes							
Date: 12/17/2024	Designed By	Furnished By	Installed By	Notes				
Power & Lighting	Power & Lighting							
Service Equipment Upgrade	NIC	NIC	NIC					
Power and Distribution	Design Team	Contractor	Contractor					
Heat Trace	Design Team	Contractor	Contractor					

ELECTRICAL CONSTRUCTION DOCUMENTS CONTRACTOR AND DRAWINGS COORDINATION

CD Set

Construction Documents (CD) means the overall design is at 100%.

Page E-1

4

Project Drivers faculty the support they need. Project Goals

• Provide a consistent and maintainable gutter de-ice and snow melt electrical system. **Project Requirements** • Provide gutter de-ice and snow melt system for the USU Public Relations Building that

meets campus standards. • Provide electrical systems that meet and exceed energy code requirements. • Provide flexible, controllable systems for the USU facilities staff.

BUILDING SERVICE AND DISTRIBUTION

Panelboards The existing building is provided with panelboards located in the hallway on level two that are currently serving heat trace circuits on the existing roof. Additionally, distribution panelboards will

be provided in the new addition where required for new power distribution. Branch Circuits

All branch circuit wiring shall be copper with a minimum of #12 AWG. Branch circuits will be loaded to no more than 80% of what is allowed by NFPA 70. Each 20A circuit shall supply no more than 125ft of de-icing heating cable. Each branch circuit homerun will have no more than 3 circuits per raceway. Dedicated neutrals for each phase conductor will be provided. All heat trace circuits will be supplied by 30mA GFCI breaker capable of being locked out in the open position.

Conductors

All conductors will be copper. Conductors for branch circuits will be sized to prevent voltage drop exceeding 3% at the farthest load. The total voltage drop on both feeders and branch circuits will not exceed 5%. Heating cables shall be rated for 120V minimum and shall have a Fluoropolymer or modified polyolefin outer jacket.

Raceways

All raceways are minimum ¾"C. Conduit is not allowed to be embedded in concrete slabs. A 200lb. nylon pull string shall be provided in all empty conduits. Provide rigid metal conduit or intermediate metal conduit in areas where conduit is subject to damage.

Grounding

Branch circuit raceways will include an insulated equipment grounding conductor.

Page E-2

OWNER: UTAH STATE UNIVERSITY 12/18/2024 REV DATE DESCRIPTION

ENGINEERS 324 S. State St., Suite 400 Salt Lake City, UT 84111 800-678-7077 801-328-5151 fax: 801-328-5155 www.spectrum-engineers.com

ELECTRICAL NARRATIVE

JOB NUMBER: 24265 DATE:

PUBLIC RELATIONS LOGAN, UT 84321 CONSTRUCTION DOO

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DOCUMENT

4040 W DAYBREAK PKWY uncommonarch.com SOUTH JORDAN, UT 84009 (801) 417-9951

Provide electrical power systems that will meet campus standards and provide students and

OWNER PROJECT REQUIREMENTS (OPR)

USU PR BUILDING RE-ROOF PROJECT

UNCOMMON ARCHITECTS PROJECT NUMBER: 24265

- 5

		1 I SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL	SECTION 260505 - SELECTIVE DEMOLITION FOR ELECTRICAL SYSTEMS
		CODE ANALYSIS BUILDING OCCUPANCY: SEE ARCHITECTURAL PLANS OCCUPANT LOAD: SEE ARCHITECTURAL PLANS CONSTRUCTION TYPE: SEE ARCHITECTURAL PLANS	MATERIALS AND EQUIPMENT: 1. MATERIALS AND EQUIPMENT FOR PATCHING AND REPAIRING SURFACE MATERIALS FOR EACH SURFACE AS REQUIRED OR AS SPECIFIED IN INE SECTIONS
		ENERGY CODE: IECC MATERIALS AND INSTALLATION SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, OTHER APPLICABLE NFPA SECTIONS, STATE AND LOCAL CODES, AND RECOGNIZED INDUSTRY STANDARDS AND PRACTICES. LISTING AND LABELING: PROVIDE PRODUCTS THAT ARE UL LISTED AND LABELED.	EXECUTION EXAMINATION 1. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL VISIT THE SITE AND F THE EXTENT OF ELECTRICAL DEMOLITION WORK TO MEET THE INTENT DOCUMENTS AND INCLUDE ALL COSTS IN BID.
	D	NEMA COMPLIANCE: COMPLY WITH CONSTRUCTION AND INSTALLATION REQUIREMENTS OF APPLICABLE NEMA STANDARDS. SUBMITTALS: SUBMIT PRODUCT DATA AND SHOP DRAWING ON THE FOLLOWING EQUIPMENT FOR APPROVAL: 1. WIRING DEVICES.	 VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE IN THE CONTRACT DOCUMENTS. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABAN FACILITIES. UNTERMINATED WIRING IS NOT ALLOWED.
		 LIGHTING FIXTURES. DISCONNECTS. TRANSFORMERS STARTERS PANELBOARDS ELECTRICAL EQUIPMENT AND DEVICES AS SHOWN IN SPECIFICATIONS 	 DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION A RECORD DOCUMENTS. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING EXISTING INSTALLATION. REPORT DISCREPANCIES TO ENGINEER BEFORE DISTURBING EXISTING
		PRIOR TO SUBMITTING BID, CONTRACTOR SHALL PERFORM A SITE VISIT TO VERIFY ALL EXISTING CONDITIONS AND ANY ITEMS THAT MAY AFFECT CONSTRUCTION OF THIS PROJECT. ALL COSTS SHALL BE INCLUDED AS PART OF BID.	 BEGINNING OF DEMOLITION MEANS INSTALLER ACCEPTS EXISTING CON PREPARATION: DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS
		CONTRACTOR SHALL MAINTAIN A SET OF REDLINED AS-BUILT DRAWINGS AND DELIVER TO OWNER UPON COMPLETION OF PROJECT.	2. COORDINATE UTILITY SERVICE OUTAGES AS DIRECTED BY THE OWNER
		PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.	3. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN EXIST IN SERVICE DURING CONSTRUCTION. WORK ON ENERGIZED EQUIPMEN CIRCUITS IS NOT ALLOWED; FOLLOW REQUIREMENTS OF OWNER PRIO INITIATING AN OUTAGE OR INTERRUPTION OF SERVICE.
		LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES WITHIN OR PASSING THROUGH DEMOLITION AREA AND SERVING OTHER AREAS OUTSIDE THE DEMOLITION LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS. COORDINATE POWER INTERRUPTIONS ONE WEEK IN ADVANCE WITH OWNER. IF POWER INTERRUPTIONS DISTURB NORMAL OPERATIONS, THEN POWER INTERRUPTIONS ARE	 EXISTING ELECTRICAL SERVICE: MAINTAIN EXISTING SYSTEM IN SERVI SYSTEM IS COMPLETE AND READY FOR SERVICE. DISABLE SYSTEM ON SWITCHOVERS AND CONNECTIONS. MINIMIZE OUTAGE DURATION. A. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS WORK AREA.
		ONLY ALLOWED DURING NON-BUSINESS OR NON-OPERATION HOURS. COORDINATE WITH OWNER FOR ALL POWER INTERRUPTIONS AT LEAST 1 WEEK PRIOR TO POWER OUTAGE. PATCH AND REPAIR SURFACES THAT ARE DISTURBED OR DAMAGED AS A RESULT OF	5. EXISTING FIRE ALARM SYSTEM: MAINTAIN EXISTING SYSTEM IN SERVIC SYSTEM IS ACCEPTED. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS CONNECTIONS. MINIMIZE OUTAGE DURATION.
	с	INSTALLATION OF FIRE-STOPPING SEALANT: INSTALL UL-LISTED SEALANT, INCLUDING FORMING, PACKING, AND OTHER ACCESSORY MATERIALS, TO FILL OPENINGS AROUND ELECTRICAL SERVICES PENETRATING FLOORS AND WALLS, TO PROVIDE FIRE-STOPS WITH FIRE-RESISTANCE RATINGS INDICATED FOR FLOOR OR WALL ASSEMBLY IN WHICH PENETRATION OCCURS. COMPLY WITH INSTALLATION REQUIREMENTS ESTABLISHED BY TESTING AND INSPECTING AGENCY	 A. NOTIFY OWNER BEFORE PARTIALLY OR COMPLETELY DISABiling S B. MAKE NOTIFICATIONS AT LEAST 24 HOURS IN ADVANCE. C. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS WORK AREA.
			 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK: 1. COORDINATE THE DISPOSAL OF RECYCLEABLE EQUIPMENT AND CIRCU WITH THE OWNER. COORDINATE WITH OWNER FOR ANY ITEMS TO BE S PART OF THE DEMOLITION.
		SECTION 260810 - ACCEPTANCE TESTING FOR ELECTRICAL POWER EQUIPMENT AND SYSTEMS SUBMITTALS:	 REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCONEW CONSTRUCTION. A. REMOVE ALL DEVICES, RACEWAYS AND WIRING FROM WALLS TO WHERE ACTIVE RACEWAYS OCCUR IN WALLS TO BE REMOVED, R RACEWAY WITH ASSOCIATED WIRING TO KEEP THE CIRCUIT OPER
		 TEST AND INSPECTION FIRM'S QUALIFICATION STATEMENT: NAME AND QUALIFICATIONS OF ORGANIZATION. NAME AND QUALIFICATIONS OF LEAD ENGINEERING TECHNICIAN. INCLUDE A LIST OF THREE COMPARABLE JOBS PERFORMED BY THE TECHNICIAN WITH SPECIFIC NAMES AND CONTACT INFORMATION FOR REFERENCE. 	 DISCONNECT AND REMOVE ABANDONED WIRING TO SOURCE OF SUPP NEXT ACTIVE DEVICE THAT WILL REMAIN IN SERVICE. DO NOT LEAVE W UNTERMINATED. DISCONNECT AND REMOVE EXPOSED PACEWAYS AND RACEWAYS ARE
		 TEST AND INSPECTION PLAN: PRIOR TO PERFORMING TESTING AND COMMISSIONING, PROVIDE OWNER TEST AND COMMISION PLAN AT LEAST 5 DAYS BEFORE TESTING. OWNER SHALL COMMENT AND APPROVE ALL TEST PLANS. INSPECTION AND TEST REPORTS: PRELIMINARY ELECTRONIC REPORTS 	ACCESSIBLE CEILINGS. CUT RACEWAYS 6-INCHES FROM WALLS AND FL WHERE RACEWAYS MUST BE ABANDONED. SAFE-OFF, SEAL, CAP, PLUC OTHERWISE AIR-GAP RACEWAYS THAT MUST BE ABANDONED IN PLACE
		DOCUMENTING RESULTS NOT MORE THAN 3 CALENDAR DAYS AFTER EACH TEST OR INSPECTION. CERTIFIED ELECTRONIC COPIES NOT MORE THAN 14 CALENDAR DAYS AFTER EACH TEST OR INSPECTION. SHOW CERTIFICATION OF COMPLIANCE WITH SPECIFIED REQUIREMENTS, IDENTIFY DEFICIENCIES, AND RECOMMEND CORRECTIVE ACTION WHEN APPROPRIATE.	 DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE / OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. BLANK COVER FOR ABANDONED OUTLETS THAT ARE NOT REMOVED. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBU EQUIPMENT AND THE ASSOCIATED MOUNTING HARDWARE.
		EXECUTION:	 DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SEF UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.
	Б	1. VERIFICATION OF CONDITIONS: VERIFY THAT THE INSTALLED EQUIPMENT IS THE	8. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACK HANGERS, AND OTHER ACCESSORIES.
		EQUIPMENT DESIGNATED ON THE APPROVED SHOP DRAWINGS. CHECK THE EQUIPMENT DESIGNATIONS, DEVICE CHARACTERISTICS, SPECIAL INSTALLATION REQUIREMENTS, APPLICABLE CODE REQUIREMENTS, AND OTHER CONDITIONS THAT MAY AFFECT THE SUCCESSFUL, SAFE PERFORMANCE, AND OPERATION OF THE SYSTEM.	9. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING D AND EXTENSION WORK TO A STATE EQUAL TO OR BETTER THAN FOUN THE DAMAGE.
		 COMPARE THE INSTALLED EQUIPMENT TO THE APPROVED SHOP DRAWINGS AFTER INSTALLATION AND SUBMIT A REPORT TO OWNER IDENTIFYING FOUND DISCREPANCIES. ACCEPTANCE TESTS AND INSPECTIONS: 	 10.MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS THAT REM MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE. 11.EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS C WITH EXISTING ELECTRICAL INSTALLATIONS, OR AS SPECIFIED
		1. TEST ELECTRICAL GROUNDING FOR COMPLIANCE WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.	CLEANING AND REPAIR:
		2. USE SUITABLE TESTING EQUIPMENT FOLLOWING THE REQUIREMENTS OF NETA ATS, SUBSECTION 5.2, "SUITABILITY OF TEST EQUIPMENT" AND SUBSECTION 5.3, "TEST INSTRUMENT CALIBRATION."	 CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT THAT REMA ARE TO BE REUSED. PANELBOARDS: CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS (ELECTRICAL CONNECTIONS. REPLACE DAMAGED CIRCUIT BREAKERS A CLOSURE PLATES FOR VACANT POSITIONS. PROVIDE TYPED CIRCUIT D
		 PERFORM THE FOLLOWING FUNCTIONAL TESTS: A. PERFORM FIELD ACCEPTANCE TESTING ON EACH ITEM OF ELECTRICAL DISTRIBUTION EQUIPMENT INSTALLED OR CONNECTED AS PART OF THE CONTRACT. B. FUNCTION-TEST EACH SYSTEM TO ENSURE TOTAL SYSTEM OPERATION. 	SHOWING REVISED CIRCUITING ARRANGEMENT. INSTALLATION: 1. INSTALL RELOCATED MATERIALS AND EQUIPMENT IN THE SAME MANNE WERE INSTALLED PREVIOUSLY.
		 C. PERFORM INSPECTIONS AND TESTS REQUIRED BY INDIVIDUAL TECHNICAL SPECIFICATION SECTIONS AND THE APPLICABLE SUBSECTIONS OF NETA ATS, SECTION 7. D. PERFORM INSPECTIONS AND TESTS REQUIRED BY MANUFACTURER 	
		INSTRUCTIONS AFTER INSTALLATION.	
	A	 5. PERFORM ALL COMMISSIONING OF ELECTRICAL EQUIPMENT AND SYSTEMS TO FULLY SHOW SYSTEM IS FULLY FUNCTIONAL AS DESIGNED. COMPLETE COMMISSIONING PLAN AND SUBMIT REPORT TO OWNER FOR APPROVAL. 	
		 NOTIFY OWNER OF DEFICIENCIES, INCLUDING DEFICIENCIES WITH OWNER-FURNISHED EQUIPMENT. RECTIFY DEFICIENCIES FOUND WITH CONTRACTOR-FURNISHED EQUIPMENT AND RE-T WORK AFEFOTER DY OUT OF THE TOTAL OF TOTAL OF THE TOTAL OF THE TOTAL OF THE TOTAL OF THE TOTAL OF TOTAL	D TEST
		 WORK AFFECTED BY SUCH DEFICIENCIES. 8. OWNER WILL RECTIFY DEFICIENCIES FOUND IN OWNER-FURNISHED EQUIPMENT AND WORK AFFECTED BY SUCH DEFICIENCIES. 	
112024 0.43.		 FINAL ACCEPTANCE: FINAL ACCEPTANCE OF THE SYSTEM IS CONTINGENT UPON SATISFACTORY COMPLETION OF THE FUNCTIONAL OPERATION AND ACCEPTANCE TESTS. 	

EMS	SECTION 260519 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS	SECTION 260543 - HANGERS AND SUPPORTS FOR ELECTRICAL S
	PRODUCTS PROVIDE STEEL RACEWAY, FITTING, AND BOX SYSTEM FOR ALL WIRING, EXCEPT FOR	PRODUCTS MANUFACTURED SUPPORTING DEVICES:
RFACES: UTILIZE DIN INDIVIDUAL	PLASTIC CONDUIT MAY BE INSTALLED UNDERGROUND. RIGID STEEL CONDUIT: ANSI C80.1.	 RACEWAY SUPPORTS: CLEVIS HANGERS, RISER CLAMPS, CON THREADED C-CLAMPS WITH RETAINERS, CEILING TRAPEZE HA
	INTERMEDIATE METAL CONDUIT: ANSI C80.6.	BRACKETS, AND SPRING STEEL CLAMPS.
	PLASTIC-COATED STEEL CONDUIT AND FITTINGS: NEMA RN 1.	 FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATU a. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEV TOCCLE BOLTS: ALL STEEL SPRINCLEAD TYPE
AND FIELD VERIFY	PLASTIC-COATED INTERMEDIATE METAL CONDUIT AND FITTINGS: NEMA RN 1.	c. POWDER-DRIVEN THREADED STUDS: HEAT-TREATED STEE SPECIFICALLY FOR THE INTENDED SERVICE
	ELECTRICAL METALLIC TUBING AND FITTINGS: ANSI C80.3 WITH SET-SCREW OR COMPRESSION-TYPE FITTINGS. CAST FITTINGS ARE NOT ALLOWED.	3. U-CHANNEL SYSTEMS: 16-GAGE STEEL CHANNELS, WITH 9/16-
S ARE AS INDICATED	FLEXIBLE METAL CONDUIT: ZINC-COATED STEEL.	HOLES, AT A MINIMUM OF 8 INCHES ON CENTER, IN TOP SURF FITTINGS AND ACCESSORIES THAT MATE AND MATCH WITH U THE SAME MANUFACTURER.
Y ABANDONED	LIQUIDTIGHT FLEXIBLE METAL CONDUIT: FLEXIBLE STEEL CONDUIT WITH PVC JACKET.	FABRICATED SUPPORTING DEVICES: SHOP-OR FIELD-FABRICATE
ATION AND EXISTING	FITTINGS: NEMA FB 1, COMPATIBLE WITH CONDUIT/TUBING MATERIALS AND SUITABLE FOR USE AND LOCATION.	MANUFACTURED SUPPORTS ASSEMBLED FROM U-CHANNEL CON
KISTING	RIGID NONMETALLIC CONDUIT (RNC): NEMA TC 2, SCHEDULE 40 OR 80 PVC. PVC CONDUIT AND TUBING FITTINGS: NEMA TC 3: MATCH TO CONDUIT OR	STRUCTURAL SHAPES. CONNECT WITH WELDS AND MACHINE RIGID SUPPORTS.
NG CONDITIONS.	CONDUIT/TUBING TYPE AND MATERIAL. OUTLET AND DEVICE BOXES: USE ONE OF THE FOLLOWING:	EXECUTION
	1. SHEET METAL BOXES: NEMA OS 1.	INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPO PERMANENTLY TO BUILDING STRUCTURE IN ACCORDANCE WITH
ILINGS SCHEDULED	EXECUTION	COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WI INSTALLATION.
OWNER	PROVIDE MINIMUM 3/4" RACEWAY.	RACEWAY SUPPORTS: COMPLY WITH THE NEC AND THE FOLLOW
EXISTING SYSTEMS	OUTDOORS WIRING METHODS: USE THE FOLLOWING WIRING METHODS:	 CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR SI INSTALLATION OF SUPPORTS.
JIPMENT OR R PRIOR TO	1. EXPOSED: RIGID OR INTERMEDIATE METAL CONDUIT.	2. STRENGTH OF EACH SUPPORT SHALL BE ADEQUATE TO CARF
	2. CONCEALED: RIGID OR INTERMEDIATE METAL CONDUIT.	FUTURE LOAD MULTIPLIED BY A SAFETY FACTOR OF AT LEAS CASES SHALL BE LESS THAN 200 LBS IN THE STRENGTH OF E/
ERVICE UNTIL NEW EM ONLY TO MAKE N.	3. UNDERGROUND: RIGID NONMETALLIC CONDUIT, EXCEPT THAT WRAPPED RIGID METAL SHALL BE USED FOR BENDS GREATER THAN 22 DEGREES.	3. INSTALL INDEPENDENT AND LISTED INDIVIDUAL AND MULTIPLI HANGERS AND RISER CLAMPS AS NECESSARY TO SUPPORT F
AREAS ADJACENT TO	 PENETRATING CONCRETE FLOORS AND FOUNDATIONS: WRAPPED RIGID METAL CONDUIT (MINIMUM 4' EACH SIDE). 	U-BOLTS, CLAMPS, ATTACHMENTS, AND OTHER HARDWARE N HANGER ASSEMBLY AND FOR SECURING HANGER RODS AND
SERVICE UNTIL NEW IOVERS AND	 CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT): LIQUIDTIGHT FLEXIBLE METAL CONDUIT. 	MISCELLANEOUS SUPPORTS: SUPPORT MISCELLANEOUS ELECT REQUIRED TO PRODUCE THE SAME STRUCTURAL SAFETY FACTO RACEWAY SUPPORTS. INSTALL METAL CHANNEL RACKS FOR MO
LING SYSTEM.	6. BOXES AND ENCLOSURES: NEMA TYPE 3R OR TYPE 4.	BOXES, TRANSFORMERS, AND OTHER DEVICES.
AREAS ADJACENT TO	DIRECT BURIED CONDUIT OUTSIDE A BUILDING SHALL NOT BE LESS THAN 24" DEEP, WITH MAGNETIC "YELLOW WARNING" RIBBON 12" DIRECTLY ABOVE AND 6" BELOW FINISHED GRADE MEASURED FROM THE TOP OF THE CONDUIT.	IN OPEN OVERHEAD SPACES, SUPPORT SHEET METAL BOXES IN DIRECTLY FROM THE BUILDING STRUCTURE OR BY BAR HANGER HANGERS ARE USED, ATTACH THE BAR TO RACEWAYS ON OPPO
	INDOORS WIRING METHODS: USE THE FOLLOWING WIRING METHODS:	24 INCHES FROM THE BOX.
OCIRCUIT BOARDS	1. CONNECTION TO VIBRATING EQUIPMENT, INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT: FLEXIBLE METAL CONDUIT WITH MINIMUM 18" OF LIQUID-TIGHT FLEXIBLE CONDUIT	OUTLET BOXES: PROVIDE OUTLET BOXES WITH RIGID SUPPORT HANGERS BETWEEN STUDS.ZX
	(MAXIMUM OF 6 FEET), EXCEPT IN WET OR DAMP LOCATIONS USE LIQUID TIGHT FLEXIBLE METAL CONDUIT (MAXIMUM OF 6 FEET).	SUPPORTING HARDWARE SECURELY TO THE BUILDING STRUCTU
LS TO BE REMOVED.	2. DAMP OR WET LOCATIONS: RIGID STEEL CONDUIT.	PANELBOARDS, TRANSFORMERS, BOXES, DISCONNECT SWITCHI COMPONENTS IN ACCORDANCE WITH THE FOLLOWING:
VED, RE-ROUTE THE IT OPERATIONAL.	 EXPOSED: ELECTRICAL METALLIC TUBING. RIGID OR INTERMEDIATE METAL CONDUIT WHERE SUBJECT TO PHYSICAL DAMAGE. 	1. FASTEN BY MEANS OF WOOD SCREWS OR SCREW-TYPE NAIL
SUPPLY OR THE	4. CONCEALED: ELECTRICAL METALLIC TUBING.	BOLTS ON HOLLOW MASONRY UNITS, CONCRETE INSERTS OF ON CONCRETE OR SOLID MASONRY, AND MACHINE SCREWS,
YS ABOVE AND FLOORS	 CONNECTION FOR CONDUIT IN CRAMPED QUARTERS OR MISALIGNMENT EXIST. FLEXIBLE METAL CONDUIT (MINIMUM 1/2"). CONCEAL CONDUIT AND EMT, UNLESS OTHERWISE INDICATED, WITHIN FINISHED WALLS, CEILINGS, AND FLOORS. 	POWDER CHARGE AND PROVIDED WITH LOCK WASHERS AND INSTEAD OF EXPANSION BOLTS AND MACHINE OR WOOD SCR CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED S STRUCTURES. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION
P, PLUG, OR PLACE.	INSTALL RACEWAYS LEVEL AND SQUARE AND AT PROPER ELEVATIONS. RUN	SCREWS.
MOVE ABANDONED 10VED. PROVIDE VED.	PERPENDICULAR AND AT RIGHT ANGLES TO BUILDING AND STRUCTURAL ELEMENTS. RUN PARALLEL OR BANKED RACEWAYS TOGETHER, ON COMMON SUPPORTS WHERE PRACTICAL. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM SAME CENTER LINE TO MAKE BENDS PARALLEL.	2. HOLES CUT TO DEPTH OF MORE THAN 1-1/2 INCHES IN REINFO BEAMS OR TO DEPTH OF MORE THAN ¾ INCH IN CONCRETE S MAIN REINFORCING BARS. FILL HOLES THAT ARE NOT USED.
STRIBUTION	SUPPORT RACEWAYS AS FOLLOWS, IN COMPLIANCE WITH DIVISION 26 SECTION	 ENSURE THAT THE LOAD APPLIED TO ANY FASTENER DOES N PERCENT OF THE PROOF TEST LOAD. USE VIBRATION- AND S
	"SUPPORTING DEVICES": TWO SUPPORTS PER 10' RUN, WITHIN 12" OF A COUPLING, FITTING OR BEND GREATER THAN 45 DEGREES, AND WITHIN 12" OF EVERY BOX TO	FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.
BRACKETS, STEMS,	RUN CONCEALED RACEWAY IS ENTERING OR EXTING. RUN CONCEALED RACEWAYS WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE TYPE OF BUILDING CONSTRUCTION AND OBSTRUCTIONS,	
	EXCEPT AS OTHERWISE INDICATED. JOINTS AND TERMINATIONS: JOIN RACEWAYS WITH FITTINGS DESIGNED AND APPROVED	
AT REMAIN ACTIVE.	 MAKE RACEWAY TERMINATIONS TIGHT. USE BONDING BUSHINGS OR WEDGES AT CONNECTIONS SUBJECT TO VIBRATION. 	
RIATE.	2. USE BONDING JUMPERS WHERE JOINTS CANNOT BE MADE TIGHT.	
ODS COMPATIBLE	3. USE INSULATED THROAT OR EQUAL TYPE PLASTIC BUSHINGS FOR BOX CONNECTIONS TO PROTECT CONDUCTORS.	
REMAIN OR THAT	 CONNECTORS ON FLEXIBLE CONDUIT SHALL BE THREADED TYPE - NOT PUSH-IN QUICK CONNECT TYPE. 	
NESS OF	INSTALL 200-LB NYLON PULL CORD IN ALL EMPTY RACEWAYS. CAP RACEWAY USING A BLANK COVER SIMILAR TO ADJACENT WIRING DEVICE COVERS.	
KERS AND PROVIDE	ALL FUTURE RACEWAYS SHALL TERMINATE IN AN ACCESSIBLE CEILING SPACE UNLESS NOTED OTHERWISE. EXTEND AS NECESSARY.	
	RECORD CIRCUIT NUMBERS ON THE INSIDE BACK OF RECEPTACLE AND LIGHTING OUTLET BOXES USING A PERMANT MARKER OR PERMANENT LABEL.	
MANNER THAT THEY	PROVIDE GROUNDING CONNECTIONS FOR RACEWAY, BOXES, AND COMPONENTS AS INDICATED AND INSTRUCTED BY MANUFACTURER. TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, ACCORDING TO EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT	

INDICATED, TIGHTEN CONNECTORS AND TERMINALS ACCORDING TO TIGHTENING

TORQUES SPECIFIED IN UL STANDARD 486A.

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SECTION 260526 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES R ELECTRICAL SYSTEMS PRODUCTS WIRES AND CABLES: TYPE THHN/THWN-2 COPPER CONDUCTOR. ER CLAMPS, CONDUIT STRAPS, STRANDED CONDUCTOR FOR LARGER ING TRAPEZE HANGERS, WALL HEAT TRACE CABLING: RAYCHEM (GM-1X AND GM-1XT) WITH FLOURPOLYMER OR MODIFIED POLYOLEFIN OUTER JACKET RATED FOR 120V MINIMUM (OR APPROVED EQUAL). RUCTION FEATURES AS FOLLOWS: CONNECTORS AND SPLICES: UL-LISTED FACTORY-FABRICATED WIRING CONNECTORS EDGE OR SLEEVE TYPE. OF SIZE, AMPACITY RATING, MATERIAL, AND TYPE AND CLASS FOR APPLICATION AND FOR SERVICE INDICATED. SELECT TO COMPLY WITH PROJECT'S INSTALLATION T-TREATED STEEL, DESIGNED REQUIREMENTS AND AS SPECIFIED IN THE "EXECUTION" ARTICLE. NELS, WITH 9/16-INCH- DIAMETER HEAT TRACE CONNECTORS: RAYCHEM TEE CONNECTION (RAYCLIC-T) AND RAYCHEM SPLICE ER, IN TOP SURFACE. PROVIDE CONNECTOR (RAYCLIC-S) OR APPROVED EQUAL. MATCH WITH U-CHANNEL AND ARE OF DO NOT PROVIDE THE FOLLOWING UNLESS APPROVED BY THE OWNER/ENGINEER: FIELD-FABRICATED SUPPORTS OR 1. EXPOSED CABLE WIRING. U-CHANNEL COMPONENTS. 2. SPLICES IN PANELBOARD, SWITCHBOARD ENCLOSURES, OR IN CONDUIT BODIES. CHANNELS, AND OTHER STANDARD DO NOT USE ALUMINUM CONDUCTORS OR NON-METALLIC SHEATHED CABLE. DS AND MACHINE BOLTS TO FORM 208/120-V CONDUCTORS: 1. PHASE A: BLACK. CTRICAL COMPONENTS SECURELY AND 2. PHASE B: RED. CORDANCE WITH NEC REQUIREMENTS. 3. PHASE C: BLUE. SYSTEM AND WITH OTHER ELECTRICAL 4. NEUTRAL: WHITE. 5. GROUND: GREEN. 6. INSULATED GROUND: GREEN WITH WHITE STRIPE. AND THE FOLLOWING REQUIREMENTS: A. #8 AND LARGER CONDUCTORS MAY BE TAPED WITH 8" OF HALF-LAPPED IDATIONS FOR SELECTION AND COLORED TAPE AT TERMINATIONS AND PULL BOXES. **EXECUTION** EQUATE TO CARRY PRESENT AND INSTALL WIRES AND CABLES AS INDICATED, ACCORDING TO MANUFACTURER'S WRITTEN TOR OF AT LEAST FOUR, BUT IN NO INSTRUCTIONS AND THE NECA "STANDARD OF INSTALLATION." STRENGTH OF EACH SUPPORT. PULL CONDUCTORS INTO RACEWAY SIMULTANEOUSLY WHERE MORE THAN ONE IS BEING AL AND MULTIPLE (TRAPEZE) RACEWAY INSTALLED IN SAME RACEWAY. Y TO SUPPORT RACEWAYS. PROVIDE ER HARDWARE NECESSARY FOR CONDUCTOR SPLICES: KEEP TO MINIMUM. IGER RODS AND CONDUITS. HEAT TRACE: INSTALLED PER MANUFACTURER INSTRUCTIONS. LENTHS CABLE LENGTHS LANEOUS ELECTRICAL COMPONENTS AS SHALL NOT EXCEED 135 FT FOR 20 AMP CIRCUITS AT 120V. L SAFETY FACTORS AS SPECIFIED FOR _ RACKS FOR MOUNTING CABINETS, INSTALL SPLICES AND TAPES THAT POSSESS EQUIVALENT OR BETTER MECHANICAL OSURES, PULL BOXES, JUNCTION STRENGTH AND INSULATION RATINGS THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL. DO NOT USE PUSH-IN TYPE QUICK-WIRE DEVICES OR WIRE CONNECTORS. METAL BOXES INDEPENDENTLY AND BY BAR HANGERS. WHERE BAR EWAYS ON OPPOSITE SIDES OF THE BOX CONNECT OUTLETS AND COMPONENTS TO WIRING AND TO GROUND AS INDICATED AND /ED TYPE OF FASTENER NOT MORE THAN INSTRUCTED BY MANUFACTURER. TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, ACCORDING TO EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE RIGID SUPPORT USING METAL BAR MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS ACCORDING TO TIGHTENING TORQUES SPECIFIED IN UL STANDARD 486A. ASTEN ELECTRICAL ITEMS AND THEIR MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE: PROVIDE THE FOLLOWING MINIMUM SIZES ILDING STRUCTURE, INCLUDING BUT S, CABLE TRAYS, BUSWAYS, CABINETS, FOR DISTANCES LISTED ON 20A BRANCH CIRCUITS TO PREVENT EXCESSIVE VOLTAGE DROP. THE CIRCUIT LENGTH SHALL BE MEASURED ALONG THE LENGTH OF THE ONNECT SWITCHES, AND CONTROL CONDUCTOR FROM THE CIRCUIT BREAKER IN THE PANELBOARD TO THE LAST DEVICE ON THE CIRCUIT. INCREASE RACEWAY SIZE TO COMPLY WITH CONDUCTOR FILL REW-TYPE NAILS ON WOOD, TOGGLE REQUIREMENTS OF NFPA 70. ETE INSERTS OR EXPANSION BOLTS CHINE SCREWS, WELDED THREADED 1. CIRCUIT LENGTHS LESS THAN 70 FEET: PROVIDE MINIMUM #12 AWG CONDUCTOR EEL. THREADED STUDS DRIVEN BY A SIZE. WASHERS AND NUTS MAY BE USED I 2. CIRCUIT LENGTHS BETWEEN 70 FEET AND 110 FEET: PROVIDE MINIMUM #10 AWG E OR WOOD SCREWS. DO NOT WELD CONDUCTOR SIZE. AN THREADED STUDS TO STEEL EL CONSTRUCTION, USE SHEET METAL 3. CIRCUIT LENGTHS BETWEEN 110 FEET AND 170 FEET: PROVIDE MINIMUM #8 AWG CONDUCTOR SIZE. NCHES IN REINFORCED CONCRETE IN CONCRETE SHALL NOT CUT THE 4. CIRCUIT LENGTHS GREATER THAN 170 FEET: PERFORM VOLTAGE DROP CALCULATIONS AND PROVIDE CONDUCTOR SIZE TO KEEP BRANCH CIRCUIT VOLTAGE DROP LESS THAN 3% WITH A 15 AMP LOAD. STENER DOES NOT EXCEED 25 BRATION- AND SHOCK- RESISTANT SECTION 262816 - DISCONNECTS, CIRCUIT BREAKERS AND FUSES PRODUCTS ENCLOSED NONFUSIBLE SWITCH: NEMA KS 1, HEAVY DUTY TYPE, HANDLE LOCKABLE WITH 2 PADLOCKS, ENCLOSURE CONSISTENT WITH ENVIRONMENT WHERE LOCATED, MINIMUM FAULT CURRENT RATING OF 200.000 SYMMETRICAL RMS AMPERES. ENCLOSED MOLDED-CASE CIRCUIT BREAKER: NEMA AB 1, HANDLE LOCKABLE WITH 2 PADLOCKS. HEAT TRACE CONTROLLER DISCONNECT: RAYCHEM ASD-4 CONTROLLER WITH AUTOMATIC AND MANUAL ON/OFF DISCONNECT OR APPROVED EQUAL. 1. CHARACTERISTICS: FRAME SIZE, TRIP RATING, NUMBER OF POLES, AND AUXILIARY DEVICES AS INDICATED; INTERRUPTING CAPACITY RATING TO MEET AVAILABLE FAULT CURRENT. 10.000 SYMMETRICAL RMS AMPERES MINIMUM; WITH APPROPRIATE APPLICATION LISTING WHEN USED FOR SWITCHING LED LIGHTING LOADS OR HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT. 2. LUGS: MECHANICAL LUGS AND POWER-DISTRIBUTION CONNECTORS FOR NUMBER, SIZE, AND MATERIAL OF CONDUCTORS INDICATED. 3. ENCLOSURE: NEMA AB 1, TYPE 1, UNLESS SPECIFIED OR REQUIRED OTHERWISE TO MEET ENVIRONMENTAL CONDITIONS OF INSTALLED LOCATION. FUSES: NEMA FU 1 NONRENEWABLE CARTRIDGE FUSE, CLASS AS SPECIFIED OR INDICATED, CURRENT RATING AS INDICATED, VOLTAGE RATING CONSISTENT WITH CIRCUIT VOLTAGE. 1. MAIN SERVICE: CLASS L FAST ACTING. 2. MAIN FEEDERS: CLASS J TIME DELAY. 3. MOTOR BRANCH CIRCUITS: CLASS RK1 TIME DELAY. 4. OTHER BRANCH CIRCUITS: CLASS RK5 NON-TIME DELAY. EXECUTION

> CONNECT ENCLOSED SWITCHES AND CIRCUIT BREAKERS AND COMPONENTS TO WIRING SYSTEM AND TO GROUND AS INDICATED AND INSTRUCTED BY MANUFACTURER. TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS ACCORDING TO EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS ACCORDING TO TIGHTENING TORQUES SPECIFIED IN UL STANDARD 486A.

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JOB NUMBER:24265OWNER:UTAH STATE UNIVERSITYDATE:12/18/2024

REV DATE DESCRIPTION

Salt Lake City, UT 84111

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SPECIFICATIONS

1. IF THE DOWNSPOUT ENDS UNDERGROUND, THE HEATING CABLE SHOULD EXTEND INTO A HEATED AREA OR BELOW THE FROST LINE.

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2. FOR LOW-WATER-FLOW SITUATIONS, TEEING THE HEATING CABLE SO THAT A SINGLE RUN GOES DOWN THE DOWNSPOUT IS USUALLY SUFFICIENT.

3. LEAVE DRIP LOOPS BELOW THE DOWNSPOUT AT BOTTOM.

4. ONLY A SINGLE RUN OF HEATING CABLE SHOULD BE USED UNLESS OTHERWISE DIRECTED BY OWNER. THE END SEAL SHOULD BE LOOPED BACK UP AT LEAST 12 INCHES INSIDE THE DOWNSPOUT.

FIGURE 2: HEATING CABLE AT BOTTOM OF DOWNSPOUT

(A1) TYPICAL HEAT TRACE - DOWNSPOUTS

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							4								5							
							EXISTING P		IE	L:	"Ε	3"										
VOLT	S/PHA	SE/WI	RE:		PAN	IEL SIZ	ZE & TYPE: MAIN SIZE AND	TYPE	:		FED	FRO	M:	CABINET:	LOCATION:		NC)TES:				
120/20)8V, 3 I	PH 4 V	VIRE		22" \	W x 6"	D, BOLT-ON 150 AMPERE M	AIN LU	GS					RECESSED								
ACCE	SSORI	IES:			PAN	IEL DIF	RECTORY, IDENTIFICATION, GROU	JNDIN	G BAI	R					AIC	RATIN	G: 22	,000				
СКТ		OCP		LO	AD (k	VA)			Р	HASE		D				LO	AD (k)	VA)		OCP		СК
NO			BKR	I TG	PWR	CO	DESCRIPTION		Δ		3			DESCR		CO	PWR	I TG	BKR			NO
1	20	1		0.0	0.0	0.0	OFFICE 305 306 LIGHT	0.9	1.0					OFFICE 30	6 OUTLETS	0.0	0.0	0.0		1	20	2
3	20	1		0.0	0.0	0.0	OFF 302 304 RROOM			0.9	1.0			OFFICE 30	5 OUTLETS	0.0	0.0	0.0		1	20	4
5	20	1		0.0	0.0	0.0	OFFICE 300 301					0.9	1.0	OFFICE 30	4 OUTLETS	0.0	0.0	0.0		1	20	6
7	20	1		0.0	0.0	0.0	OFFICE 300 OUTLETS	1.0	1.0					OFFICE 30	6 OUTLETS	0.0	0.0	0.0		1	20	8
9	20	1		0.0	0.0	0.0	OFFICE 301 OUTLETS			1.0	1.0			OFFICE 30	5 OUTLETS	0.0	0.0	0.0		1	20	10
11	20	1		0.0	0.0	0.0	OFFICE 302 OUTLETS					1.0	1.0	OFFICE 30	4 OUTLETS	0.0	0.0	0.0		1	20	12
13	20	1		0.0	0.0	0.0	OFFICE 300 OUTLETS	1.0	1.0					CORRIDOR R	RM OUTLETS	0.0	0.0	0.0		1	20	14
15	20	1		0.0	0.0	0.0	OFFICE 301 OUTLETS			1.0	0.9			OFFICE 200	0 201 LIGHT	0.0	0.0	0.0		1	20	16
17	20	1		0.0	0.0	0.0	OFFICE 302 OUTLETS					1.0	0.9	OFF 205 20	7 VLT LIGHT	0.0	0.0	0.0		1	20	18
19	20	1		0.0	0.0	0.0	ATTIC LIGHT/RECEPTACLES	0.8	1.0					OFFICE 20	02 RROOM	0.0	0.0	0.0		1	20	20
21	20	1		0.0	0.0	0.0	SPARE			0.0	0.8			PWR: HEAT	TRACE SE	0.0	0.4	0.0	GF3	1	20	22
23	20	1		0.0	0.0	0.0	SPARE					0.0	0.8	PWR: HEAT	TRACE NE	0.0	0.4	0.0	GF3	1	20	24
25	20	1		0.0	0.0	0.0	SPARE	0.0	0.0					SPA	ARE	0.0	0.0	0.0		1	20	26
27	20	1		0.0	0.0	0.0	SPARE			0.0	0.0			SPA	ARE	0.0	0.0	0.0		1	20	28
29	20	1		0.0	0.0	0.0	SPARE					0.0	0.0	SP/	ARE	0.0	0.0	0.0		1	20	30
31	20	1	GF3	0.0	0.4	0.0	PWR: HEAT TRACE SW	0.7						SP/	ACE	0.0	0.0	0.0		1		32
33	20	1	GF3	0.0	0.7	0.0	PWR: HEAT TRACE NW			1.0				SP/	ACE	0.0	0.0	0.0		1		34
35		1		0.0	0.0	0.0	SPACE							SPA		0.0	0.0	0.0		1		36
3/		1		0.0	0.0	0.0	SPACE							SPA		0.0	0.0	0.0		1		38
59 <u>1</u>		1		0.0	0.0	0.0	SPACE							3P/	ACE	0.0	0.0	0.0		1		40
	 Q.	I		0.0	0.0	0.0		 E	<u> </u>		R		7	577				$k \sqrt{\Delta} =$		23		72
	LJ.								0 74	6	5	5	5							20 63		
	IVERS	SIFIED	LOAD	CALC		TIONS	CONNECTED AMING FER PHAS		1	0	5	0	U	AVERAU	BE CONNECTED AI			<u> </u>		03		

LIGHTING & CONTINUOUS LOADS:

RECEPTACLES:

ALL OTHER LOADS @ 100% : 1.8 kVA

BKR: GF=GFCI, GF3=30mA GFCI CAPABLE OF BEING LOCKED OUT IN OPEN POSITION, IG=ISOLATED GROUND, AF=AFCI, ST=SHUNT TRIP, RED=PROVIDE RED COLORED BREAKER, AF=ARC FAULT CURRENT INTERRUPTER, GA=COMBINATION OF GROUND FAULT AND ARC FAULT CIRCUIT INTERRUPTER, GS=COMBINATION OF SHUNT TRIP WITH GFCI

NOTES: HALFTONE ITALIC TEXT = EXISTING CIRCUIT

PANEL TYPE: GE A-SERIES PANELBOARD; CAT. NO. AF43S ALL EXISTING LOADS ARE ESTIMATED TO THE GREATEST EXTENT POSSIBLE BY THE ENGINEER AND MAY VARY FOR ACTUAL CONDITIONS. HEAT TRACE CIRCUITS 22 AND 24 TO USE THE EXISTING GF3 BREAKERS.

PROVIDE NEW "GF3" BREAKERS FOR HEAT TRACE CIRCUITS 31 AND 33.

GM-1XT and G

NOTES:

NOTE: 1. PROVIDE ALL REQUIRED PARTS AND HARDWARE FOR A COMPLETE AND WORKING SYSTEM

3

UNCOMMON architects

4040 W DAYBREAK PKWY SOUTH JORDAN, UT 84009

uncommonarch.com (801) 417-9951

- 100% CONNECTED LOAD PLUS 25%

DIVERSIFIED TOTAL kVA = 23 AVERAGE AMPS PER PHASE = 63

- FIRST 10kVA @ 100%, REMAINDER @ 50% MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH

LARGEST MOTOR CALCULATED @ 125% PER NEC

MAXIMUM CIRCUIT LENGTH IN FEET (METERS)

	Start-u	n	Circuit breaker size												
	temperature		15 A		20 A		30 A		40 A*						
	32°F	(0°C)	100	(30)	135	(41)	200	(61)	—						
GM-1X at 120 volts	20°F	(-7°C)	95	(29)	125	(38)	185	(56)	200	(61)*					
	0°F	(-18°C)	80	(24)	100	(30)	155	(47)	200	(61)*					

(B4) TYPICAL HEAT TRACE - MAX. CIRCUIT LENGTH

FIGURE 1: LAYOUT IN STANDARD GUTTERS

(A4) TYPICAL HEAT TRACE - GUTTERS

ELECTRICAL DETAILS

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GENERAL SHE			16	
1 ALL ELECTRICAL PENETRATIONS THE STRUCTURAL WALLS SHOULD BE CHI SHALL AVOID CUTTING THROUGH RE	ROUGH CMU, FOUNDATION, CONCTRETE OR ECKED FOR REBAR AND ALL PENETRATIONS BAR.	3	U	
2 ALL WORK SHALL BE DONE ACCORDI (2023 NEC), IBC, NFPA, AND IFC. COM TO THE ON SITE FIELD INSPECTION C	NG TO THE NATIONAL ELECTRICAL CODE PLIANCE AND FINAL APPROVAL IS SUBJECT)F THE AHJ.		Unco	mmon
3 CONTRACTOR SHALL UPSIZE BRANCE DROP BASED ON ACTUAL INSTALLED	H CIRCUITS AND FEEDERS FOR VOLTAGE LENGTHS.		4040 W DAYBREAK PK	WY uncommonarch.cd
4 PROVIDE DEDICATED NEUTRAL FOR	ALL BRANCH CIRCUITS.		SOUTH JORDAN, UT &	4009 (801) 417-99
5 CONTRACTOR SHALL COORDINATE E SUBMITTALS FOR ALL EQUIPMENT PF ASSOCIATED ELECTRICAL EQUIPMEN REQUIREMENTS OF APPROVED SUBM	LECTRICAL NEEDS WITH APPROVED RIOR TO ROUGH-IN AND RELEASE OF IT. ADJUST CIRCUITS TO MEET /IITALLS AS REQUIRED.	D		
6 CONTRACTOR SHALL UPDATE ALL NE NEW CIRCUIT DATA. SCHEDULE SHAL TYPED WITH THE UPDATED INFORMA	EW AND EXISTING PANEL SCHEDULES WITH L BE ON A CARD STOCK TYPE MATERIAL AN TION.	D	0 R OF 30 R OF 1021 Ma Ha Ha	No. 21159-2202 tthew John averkamp
	OTES			
1 PANEL "B" LOCATED IN APPROXIMATE EXACT LOCATION PRIOR TO WORK.	LOCATION. CONTRACTOR TO FIELD VERIFY	<i>,</i>		
2 PROJECT AREA IS IN SCOPE AS REQU "B" TO HEAT TRACE CIRCUITS LOCATE	IIRED FOR ROUTING CONDUIT FROM PANEL ED ON ROOF.			
3 ELECTRONIC SNOW MELT CONTROLL EQUAL). CONTROLLER LOCATION IS S SHALL BE COORDINATED WITH OWNE	ER (RAYCHEM ASD-4C OR APPROVED HOWN APPROXIMATE. EXACT LOCATION R PRIOR TO INSTALL.			
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		А	SP S24 S. Stat Salt Lake (800- 801- fax: 80 www.spectru LEVEL	ECTRUM G I N E E R S te St., Suite 400 City, UT 84111 678-7077 328-5151 1-328-5155 m-engineers.com 2 POWEF LAN
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